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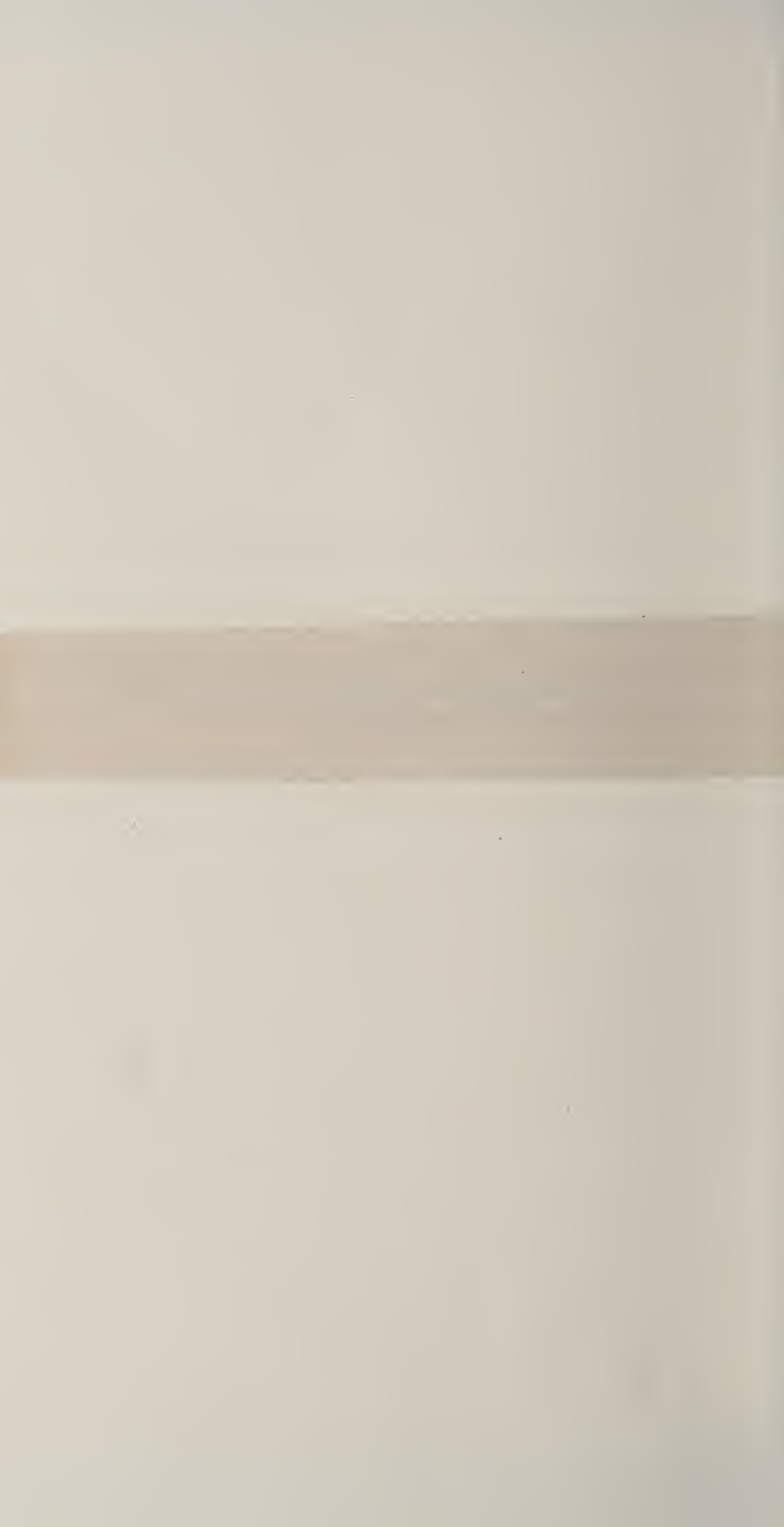
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JOURNAL
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On the tenures and fiscal relations of the owners, and occupants of the soil in Bengal, Behar, and Orissa. By JAMES ALEXANDER, Esq., B. C. S.

The word Zemindarree, in the time of the Moghuls, signified the particular extent of land over which one zemindar, or landholder, exercised jurisdiction; the collection of the revenues of that district was one of the chief duties entrusted to him, and the object of the greatest importance to the state. The amount of revenue leviabie upon it became the distinguishing character of each zemindarree, and it was the only matter regarding it of which a record was kept in the superior revenue offices. Although the area was entered in some of the registers, yet the information regarding this, or as to the peculiar boundaries or products of each tenure was very defective. When the Perpetual Settlement was effected under the British Rule in Bengal, Behar and Orissa, the same form of record was preserved, and to this day little more is known of a zemindarree than the amount revenue which it is bound to pay the state. For the actual collection of revenue, and better preservation of individual rights, more particular distinctions have become necessary; but these will be more conveniently treated of under another head.

Zemindar. This officer, under the Moghul government, exercised powers as phoujdar, or chief of the armed force, collector of revenue, and civil judge in trifling cases. On the accession of the English, his

services were required only as a middleman between the state and the actual cultivators of the soil. Although the zemindar's office had become by use hereditary, yet it is uncertain whether he had any proprietary right in the soil itself. It was, however, found convenient to bestow this right upon him, in order that it might be available as a security for the payment of the revenues of the state ; and the zemindar is now regarded as the proprietor of his zemindarree as long as he makes good the Government revenue leviable from it. Should he fail to do this, his proprietary rights are liable to sale for the realization of the demand.

It was incumbent on the zemindar, in his character of collector of revenue, to account to the state for his collections ; his remuneration consisted in a per centage on his collections. The title to office having been received as a right, the same rule held good with reference to these emoluments, insomuch that the incumbents of zemindarrees were held entitled to their allowances or per centage even when they declined to perform the duties of their office by undertaking to pay the amount of revenue at which it was assessed.* These allowances so set aside were called *Malikana*, and averaged about ten per cent. on the gross assessment of an estate ; expenses incurred in the management of an estate are either entered in the account current, and their amount deducted from the gross proceeds, or are regulated by a fixed allowance on their account : where this latter plan is adopted, they are calculated at from ten to twenty per cent. on the assessment.

The original title of the zemindar then consisted in his right to hold the lands under his jurisdiction, on condition of accounting to the state for the net proceeds after deduction of expenses and his own per centage allowances. It is evident, however, that the state had no alternative between placing implicit reliance on the accounts given in by the zemindar or testing them by an annual investigation or assessment of the lands, and that if such took place the value of the zemindarree was entirely dependent on the result. To obviate this, it was determined in the year 1790, under the local Government of Lord Cornwallis, that an assessment should be made of all estates, and that the amount so assessed should be the sum which Government

* Shore's Minute, 18th June 1789, para. 202nd ; 18th September 1789, para. 2nd.

might demand every year, and that no further demand should be made for ten years : this period of ten years was subsequently increased to perpetuity ; and all estates, held under assessments so imposed, are called Perpetually Settled Estates, or Zemindarrees.

Various causes, however, have operated to prevent or impede the settlement of many zemindarrees. These are disposed of for shorter periods, and called Estates under Temporary Settlement. The condition of tenure of these is as in Perpetually Settled Estates, the payment of the Government demand ; but the period of tenure is limited by that of the lease under which it is held, and at the expiration of this the estate is open to re-assessment.

Confirmation by competent authority is essential to the validity of either a perpetual or temporary settlement.

It is evident, that when the yearly rent of a zemindarree became fixed in perpetuity, and the payment of it was the only condition of the tenure, the condition of the zemindar was materially altered ; instead of being only interested to the extent of ten per cent. in the increases upon the annual proceeds of his estate, he had a right to appropriate to his own use all surplus proceeds after defraying the Government revenue. Rapid improvements took place in all properties held under this fixed assessment ; the favourable returns from these, together with the lightness of the original assessment, have raised the incomes of proprietors so high, that the term *Malikana* is no longer applicable to the sums, which they receive in their character of zemindars. These are now designated, generally, as Proprietary Profits ; they consist in the net proceeds of an estate after deducting the Government revenue and the expenses of collection, and will of course vary very much in proportion to the capabilities of an estate, and the success of the management to which it is subjected.

A talook is a subordinate tenure within the jurisdiction of a zemindarree. Talooks were of various descriptions. In some cases the talookdar had obtained the fee-simple or proprietary right in lands composing their talooks, either from the zemindar or his ancestor, or directly from the state ; and his title was indefeasible as long as he paid the Government dues : in others, the incumbency of the talookdar in the subordinate tenure was prior to that of the zemindar in the larger ; in others, the zemindar had never any proprietary right in the lands of

the talook. In all these tenures it was ruled at the formation of the Perpetual Settlement, that the talookdars should have the privilege of entering into engagements, and paying their revenue directly to the state, and that they should be independent of the zemindar. Talooks of this class are called Independent, or *Huzooree Talooks. In cases where the deeds under which the talook was formed only alienated the zemindar's title to collect the rents without conveying any proprietary right in the soil, or where it was evident from the form or wording of the lease that the zemindar contemplated the resumption of his title, the talook was considered dependent, and the rent of the talook was included in the assets of the zemindarree, and paid to the state through the zemindar. Under many circumstances, to be detailed hereafter, the rent on the talook was liable to enhancement on the part of the zemindar. It was however ruled, that neither loss nor gain on the rents derived from his subordinate tenures, could affect the amount of rent payable by the zemindar to the state. The rents of talooks were either increased or diminished, or new talooks were established at his own risk; and the civil court was in all cases the arbiter of his title to interfere with his talookdars.† With reference to the establishment of new talooks, it was laid down that he could not alienate lands for a period extending beyond that of his own incumbency; that this being conditional on the payment of Government revenue, any failure in this payment would render void his own title, and also that of all other tenants holding immediately under himself. The effect of this rule is, that on an estate being sold by auction for arrears of rent, all leases granted by the former proprietor since the Decennial Settlement become void, and the lessees liable to an enhancement of their rents under certain restrictions, which will be more fully specified hereafter.

The cultivators of the soil in India have acquired various titles and privileges, acquaintance with which is essential to understanding the revenue system. Indiscriminate use of terms has given this part of the

* The word *Huzoor* signifying literally, *the presence*, is applied in India to designate the extant supreme authority in the land. The addition of a vowel affix gives it the form of an adjective, and thus a *Huzooree Talook* comes to mean a tenure having directly to do with the Supreme Government without intermediate lien, or intervention.—EDS.

† Clause 8, Section 15, Regulation VII. 1799.

question some appearance of intricacy: to obviate this, a mere detail of the titles will be given in this place, and the privileges obtained under those titles will be more fully considered when the rates of rent are discussed; for it is evident, that in the ryuttee as in the zemindarree tenure, the rent which it will yield is the distinguishing mark of each sort of tenure, and the only point about it to which interest attaches in a discussion on revenue laws. The exact meaning of the word *ryut* is not conveyed by the word cultivator; for a man may be a ryut without being a cultivator: neither is the word *resident* a proper translation, for a man may be a resident without being a ryut. By the word *ryut* is implied a certain relation towards the community of the village of which a man is a ryut, and towards the zemindar of that village. An artificer or shopkeeper may stand in these relations of citizenship and vassalage, although perfectly unconnected with the cultivation of the lands of a village: in pursuing his occupation or trade in another part of the country he will still call himself the ryut of the particular village, and the particular zemindar with which he is connected as a ryut. When he dissolves this connection and becomes the ryut of another village, his rank and title in his new location are completely changed. This discussion appears necessary, because it is not uncommon to observe great misuse of the word *ryut*, as a revenue term; whereas it is not, until connected with some other word implying employment in culture, that it acquires any value at all. Thus the terms *kudeemee* or *morousee* ryut do not imply a ryut possessed of any peculiar privileges, merely that his ancestors were ryuts in the village, even a *moccurree* ryut may hold only the area of his homestead, and these are the most common sort of *moccurreedars*. The proper definitions and distinctions are *khod.khasht*, *pae-khasht*, *moccurree khod.khasht*, *morousee khod.khasht*, *kudeemee khod.khasht*, *moccurree pae-khasht*, *morousee pae-khasht*, *kudeemee pae-khasht*. The several privileges which these various titles confer, will be discussed under the head of Rates. It will be necessary to observe, that the term *jote* is the word which may be most conveniently employed in expressing the land held by each particular ryut.

The rent of land is the hire paid for the use of it. The original contract was very much this;—the proprietor of the soil gave the use of it, and the cultivator gave his labor, and the proceeds

or crop were divided between them. Many causes, however, tend to disturb the primitive simplicity of this arrangement ; the degree of labor requisite to ensure a compensating return is liable to great variation. Labor is not the only capital needed : the implements of husbandry, cattle employed in agriculture, seed, the means of protection,—all require outlay, and it soon becomes a question, in what proportion this is to fall on the contracting parties ? The landlord must constantly observe his tenant to ensure his honesty, and the tenant is discouraged by the reflection that one-half of his labor must be bestowed for the benefit of another. The first step towards the adjustment of these difficulties is, generally, a variation in the proportion of the crop receivable by the landlord, calculated with reference to the contribution which he makes towards the joint capital employed in the cultivation, whether in the shape of seed, cattle, hired labor, or any thing else necessary to raising the crop. Where the cultivator contributes labor only, he receives somewhat less than one-half of the crop ; where he contributes both labor and capital, he receives more : the latter is most commonly the case in India, but even after the adjustment of the proportions due to either party, difficulties will still remain, in any scheme of partition. The two most important have already been noticed—the necessity on the part of the landlord, of constantly watching his tenant ; and the discouragement on the part of the tenant, in bestowing extra labor and capital. To obviate these inconveniences, the landlord allows the tenant to redeem the proprietor's share in the proceeds, and this gives rise to money-rents, or the payment of rents of money. Although a revenue officer in this country has generally the task of discovering and recording the rents actually paid, rather than that of determining what they ought to be ; yet it is important, that he should have some knowledge of the various causes which affect the adjustment of money-rents, and indeed his doing so is essential to his understanding the different tenures under which ryuts hold, and the rates at which they are assessed. Soil, stock, and labor, are all three necessary to the production of a crop : if these were all three contributed in proportions of equal value, it is evident that the hire of the soil should equal one-third of the whole produce ; but in agreeing to pay an unvarying rent the tenant ensures the landlord against losses by failures of crop, defective seasons, fluctuations in the value of grain and

labor, and relieves him from all the care and expense of watching over and transporting his own share of the produce. In order therefore to make an equitable adjustment in converting rents paid in kind into money-rents, every one of these points should receive attention; and although it is probable that these questions were not formerly understood in all their minuteness of detail, yet we find that in practice the cultivator discovered them as it were by experience, and limited his payments in money to the amount at which cash payments were advantageous or not hurtful to his interests:—and here it must be recollected that in the earlier history of a country the producer and consumer are more nearly on an equality with each other, that it is not until the increased possessions of the latter give him a monopoly over the land that he can dictate its price to the former; the careful recollection of this fact will afford material assistance in the consideration of the various rates paid by the different classes of cultivators in India. In discussing these it will also be necessary to bear in mind the distinction between the actual rate or *nerick*, and the various additions which have been made to it by the avarice of the landlords. This was formerly so well understood, that in the earlier discussions on revenue matters in this country we generally find the term *ussul nerick*, as distinguishing the actual rent or hire of the land from all extra demands made under other pretences. Although this distinction has been very much lost sight of, yet the careful analysis of the accounts of any zemindarree will shew the total demand of *dustúr* against the ryut is made up of the *ussul nerick*, and various other extra charges. Although these latter are discountenanced and invalid by law, yet the possession of a monopoly of a necessary of life will always give rise to the disposition to profit by it, and landlords in this country are not more disposed than in others, to place other limit on their desires than that which necessity imposes. The cultivator must have land, and he can afford to pay for the hire of it, the whole surplus proceeds remaining after the deduction of the costs of production, and a sum sufficient for his own maintenance. In England this is so well understood, that the capability of the tenant to pay is the only limit to the landlord's demand for rent. In this country ancient institutions, new laws, and large tracts of waste land, contribute to defeat the monopolizing tendencies of the landlord; but there is a constant struggle between himself and his tenantry regarding

the share which they are respectively to enjoy of the surplus profits of cultivation. In England there being no general laws for the protection of the tenantry, many landholders have at different times purchased peculiar privileges from their landlords, which have descended from father to son, and are in force to this day; the effective conditions of the judicial institutions rendering any attempt on the part of the landlord to set them aside, useless. The general laws in this country are well calculated to preserve to the cultivators all privileges, which ancient institutions or prescription without any special purchase or individual guarantee have conferred upon them; but various causes have prevented their taking advantage of the protection of these laws. Now, however the necessity of obedience of the law and executive power is becoming daily more apparent, and exactly in proportion as these assert and maintain their authority well, the peculiar privileges of the cultivator receive protection: hence also careful examination of them with a view of understanding what they are, becomes daily more interesting and important; as the *nerick* or rate of rent may be considered the index, or as it were test of the value of these privileges, they will come most conveniently under consideration in a review of the various sorts of rates which prevail in this country.

Nerick moccurree.* A fixed rate of payment secured to the cultivator under the guarantee of a written document; it is essential to the validity of tenure at a moccurree nerick, that the land had been held at fixed rates twelve years previous to the Decennial Settlement, that the payments should have been uninterrupted and uniform. Any failure of payment renders the lease void, and proof of increase of payments on former occasions is generally regarded as evidence, that the moccurree tenure has been broken up. Moccurree nericks established by zemindars, at any date less than twelve years before the Permanent Settlement, are liable to be broken up on the sale of the estate for arrears of revenue, unless granted for specific purposes, or proved not liable to increased assessment on the grounds stated in Sect. 51, Reg. VIII. 1793.

Leases conveying moccurree rights need not necessarily specify the rate of rent: they frequently record the total area and total rent, or

* *Sudder Dewanny Reports*, Vol. I. page 102, "as no mention of a moccurree tenure occurred in an authentic document."

describe the external boundaries of the land, and mention the rent to be paid by the tenant; but documents of this sort will generally be found to bear dates antecedent to that of the Decennial Settlement; since then the practice of giving moccurree leases, except for special purposes such as the erection of buildings, &c., has fallen very much into disuse; where the grants have been made for specific purposes at fair rates, they are not liable to enhancement as long as the lands continue to be used for the purposes specified in the leases. These points are specified very clearly in Sect. 27, Reg. XII. 1841.

The right to cancel a moccurree tenure does not convey any title to oust the moccurreedar, but merely to assess his land at the discretion of the purchaser, who still retains his right of tenancy. (Vide *Sudder Dewany Adawlut*, vol. 1, 174.) It must be borne in mind, that the date of the Permanent Settlement is that on which each particular settlement received confirmation from competent authority. Although in the majority of cases this occurred on the same day with reference to properties situated in the same tract of country, yet enquiry on this point is always necessary inasmuch as there are many exceptions to the rate.

Nerick Monroosee. Fixed rates to which a title is established by inheritance. Although the term Meeras is commonly employed to denominate tenures at a fixed rent, yet taken by itself it conveys a title of very uncertain value, the heritage must consist of something to be inherited. If this be a lease guaranteed to the descendants of the lessee, the tenures should be more properly considered under the head of Moccurree, if it be a prescriptive title it should be considered under that head; it is possible that there may be an attempt to found a title on the fact of a series of undisturbed successions, the evidence to this, if not that of documents in the hands of the claimant must be obtained from the public records, or those of the zemindar; or it may be oral evidence assisted by tradition, but so many difficulties lie in the way of this sort of proof, that a Meeras will generally, as before remarked, prove a poor tenure unless supported by documents or prescription.

Nerick-i-kudeem. Fixed rates to which a title is established by prescription. The nobleman, under whose auspices the Permanent Settlement was completed, recorded the following observation on the right

of cultivators: "Unless we suppose the ryuts to have been the actual slaves of the zemindars, every beegah of land possessed by them must have been cultivated under an express or implied agreement, that a certain sum should be paid for each beegah of produce, and no more. Every *Abwab* or tax imposed by the zemindar over and above that sum is not only a breach of that agreement, but a direct violation of the laws of the country. The cultivator has therefore in such case an undoubted right to apply to Government for the protection of his property, and Government is at all times bound to afford him redress." This spirit pervades the whole body of law relative to the rights of the agricultural community. His Lordship again declares, "That the privilege which the ryuts enjoy of holding possession on the spots of land which they cultivate so long as they pay the revenue assessed upon them, is by no means incompatible with the proprietary rights of the zemindars; whoever cultivates the land the zemindars can receive no more than the established rent, which in most places is fully equal to what the cultivator can afford to pay. The zemindars however may sell the land, and the cultivator must pay the rent to the purchaser." Now, although it is probable that any attempt on the part of the ryut to produce evidence of express agreement as to the terms of the original contract under which he broke up the soil, must fail, and although the nature of the implied agreement must have been dependent on so many circumstances, in which the lapse of time must have wrought such a change as to leave no trace by which to assist the formation of the judgment regarding them, yet evidence will be generally procurable as to what the rate has been, and in the absence of all proof to the contrary, it is assumed that this is what it ought to have been; and the fact of having held this rate confers on the cultivator a prescriptive title to continue to do so, and in this way a title to hold rates fixed by time and custom constitutes a good and valid tenure. Then again this title to hold at established rates, may be attached to particular spots of lands, particular villages, particular classes in a village, particular divisions of the country, or peculiar local custom. The first, and in some respects, most valuable is the right to hold particular spots of land on payment of a rent fixed by custom; the land so held constitutes what is known by the name of, *Mokuddum ryuttee jote*, (answering

very much to our English copyhold *) is transferable by sale, and is undefeasible as long as the rent is paid. In Central Bengal where the introduction of Indigo has raised the demand for land, and the presence of Europeans has given greater stability to the interests of cultivators, these jotes are recognized as valuable properties, and are transferred from hand to hand by sale or mortgage solely at the pleasure of the *jotedar* without reference to the zemindar, who has no claim except for his rents. In Eastern Bengal where land is more abundant in proportion to the demand, and where the system of underletting exposes the ryut to the ever varying aggressions of new farmers, if confidence in the stability of the rates is not so strong, and tenures held under prescriptive title have not the same value as marketable commodities, neither will the cultivator himself incur the risk of any extensive outlay in the formation of gardens, the excavation of tanks, and the building of houses, unless under the additional guarantee of a lease or other document. The estimation in which it is held in the market, however, does not affect the real validity of the title; a tenure^r under rates established by prescriptive usage is valid in Eastern Bengal as elsewhere, but there are not the same facilities for asserting it as in Central Bengal, where it has been already recognized as a transferable property.

Nerick Monza-waree. Prescriptive usage has in some places given the inhabitants of a village a title to cultivate the lands in it at the rates established for each peculiar class of soil; this title acquires its validity from the inability of the zemindar to levy more than the established rates; he sues a ryut for land which he has cultivated without entering into engagements, although duly served with a notice, under Section X. Reg. V. 1812. The cultivator in defence states, that that notice raised the rates above those of the village; the questions then to be determined are, what are the village rates, and what title the ryut has to the enjoyment of the privilege of cultivating at those rates? The first is regulated by such evidence as may be procurable; the second depends very much on local usage; the nearest approach to a general rule is, that the cultivator if not duly served with a notice to enter into fresh engagements, cannot at the end of the year be called

* Vide Vol. IV. *Sudder Dewanny Adawlut*, 274.

on to pay more than he paid the two preceding years, and that a cultivation of two years' standing is necessary to give him a title to cultivate at the village rates. There is an apparent difficulty, as to whether the cultivation must be of the same spot, or whether the title holds good in the event of any change, but the fact in practice is, that cultivators will never break up new or even fallow soil except at reduced rates: so that the question generally arises in the third year of cultivation, when, the particular spot of land in dispute having become a valuable holding, the zemindar wishes either to dispossess the tenant and let his land to another at increased rates, or to obtain those increased rates from the occupant, who then, in the absence of other title, claims to hold at the same rate as other cultivators in the village, or at the village rates.

The *Nerick-i-Mukuddum* is a rate established in favor of particular individuals, who claim to hold land at rates below those of the village, as a privilege of caste or office; where there is sufficient evidence to prove that this title has been previously recognised, it acquires a force from prescription which is not easily set aside, but it has been generally conceded by the zemindar rather than admitted by Government, or the Courts; but still in practice it will be found, where there are Rajpoots in the same village with Goallas, Keorás, and Chamars or other low-caste men, that they hold their lands on more favorable terms than these latter; the alleged reason is, that the Rajpoot cultivator is compelled to employ servants, who see the whole of the labor is performed by the lower caste cultivators with their own hands. It has already been remarked, that this title must be recognised with caution.

The *Pergunnah-waree Nerick* is resorted to, to check the Mowzarree Nerick in cases where the latter cannot be determined by evidence, or when the proper assessment of a village hitherto held at an inadequate rent requires re-adjustment. It is the prevailing rate in the pergunnah, a well known revenue division of the country.

The *Bundoobustee Nerick* is the rate recorded by an officer deputed under Reg. VIII. 1822, to effect the settlement of an estate as the proper Nerick of the place; it ought to be either a mere record of the prevailing rates fixed with reference to the various titles under which the different cultivators hold their land, or of the rates determined by

himself with due reference to the prevailing pergunnah rates. Rates thus established are under the provisions of Section XI. Reg. VII. 1822, fixed for ever, as far as concerns the ryut holding under them at the time of settlement; neither can this in propriety be questioned in the Civil Court.

Jungle-booree Nerick. The rate at which cultivators enter into engagements to bring jungly land into cultivation. These of course depend on the terms of the specific contract entered into. It may be useful to notice the various circumstances which may affect this. These are, the density of the jungle required to be cleared, the situation of the land with reference to markets, public thoroughfares or rivers, the demand for land in the neighbourhood, the means of irrigation, the quality of the soil and water, the aspect of the ground, and the healthiness of the climate.

Nayabadee Nerick. The rate at which cultivators enter into engagements to bring waste lands into cultivation; the above remarks are very much applicable to it also.

Bheetee Nerick is the rate at which land for building is let. It is generally fixed on each house, and is determined by the eligibility of site, the extent of population, and similar causes; in almost every case former payments will be the only satisfactory evidence regarding this rate.

Nerick Baghan, Nerick Phulkur. These two rates appertaining to orchards or gardens may be considered together. As some outlay is necessary for the preparation of a garden, the cultivator generally secures himself by obtaining a lease of the ground beforehand; where he fails to do this, and has no prescriptive rights in his favor, the zemindar claims some proportion of the produce; even where this is as low as one-fifth, it is disadvantageous to the ryut, as orchard land requires great care in cultivation, and yields exceedingly high returns. A grove of mango trees standing on five acres will yield four or five hundred rupees if situated near a public road; in like way the produce of betel gardens, or pawn gardens, is of such value that the highest rate of money rent, will seldom equal more than one-twentieth or twenty-fifth part of the assets. With all these rates the evidence of past payments, or the payments in adjoining fields or properties is the best guide for determining what ought to be paid in each particular case; where evidence on this head is not procurable, great caution must be

exercised in calculating a money rent from an estimate of raw produce. It will be of importance to ascertain from evidence what proportion of this produce local custom assigns to the zemindar, and then carefully to bear in mind the fluctuations of markets, seasons, price, and other points before noticed in the discussion on money rents.

Nerick-i-Deh. In parts of the country where the villages are built in rows or streets, and the houses clustered together, the value of all lands is somewhat affected by their degree of proximity to the village, but the fields in the immediate vicinity of the houses are of peculiar value from the facility with which they are guarded, and the opportunity afforded of irrigating these from the village wells. These are called Deh lands, and are devoted to the more valuable crops, poppy, spices, tobacco, sugar-cane, and all others which require irrigation and watching. The rates on these are proportionate to the advantages conferred by position, and will generally be found recorded in the village accounts; where these are not procurable, nor appear trustworthy, evidence of former payments on cultivators of similar land will afford some guide as to what the rates ought to be. In adjusting a money rate, reference must be had to the amount of labor bestowed in raising and gathering the crop, more particularly the latter, when it consists of opium or spices.

Nerick Muteherfa. In Behar, the cultivating classes do not pay ground rent for the spaces occupied by their houses; this however is levied from artizans, and shopkeepers and other residents not cultivators, under the head of Muteherfa. In Bengal the word *Chandnee* is more commonly used for this peculiar class of rent; local usage, village accounts, and evidence of past payments, will afford the best guide in deciding claims regarding this rent. In adjusting a money rent, it is necessary to consider what are the advantages obtained, and what is included in the rent, such as a right of wharfage on the banks of a River, of frontage in a Bazaar, or of participation in the commercial privileges of the place in a large town; all which will affect the rent materially, and will, under peculiar circumstances, raise it to nearly 500 or 1,000 per acre.

Nerick-i-Bhatai, is the rate or proportion at which the rents of land are levied in kind. Where the simple word *Bhatai* is used, the produce is usually divided into two equal shares, of which one is

appropriated by the tenant, the other by the landlord ; it is occasionally, however, levied in other proportions, such as one-fifth and four-fifths, two-fifths and three-fifths, one-third and two-thirds, or such other proportions as may be determined on.

Nerick-i-kutnee. This is rather a legal term than an absolute rate. Where disagreement exists as to the terms of divisions, or when the landlord neglects to assess the standing crop, the cultivator cuts it at his own risk, and if he fail to satisfy the landholder, the latter brings an action at the *Nerick-i-kutnee*, stating that the crop having been cut he had no means of assessing it, and therefore sued the cultivation at the full value of an average crop ; this value is generally laid at twenty maunds per beegah of the standard of Akbur. It becomes necessary to determine through whose neglect no assessment was made, what the terms of cultivation were, what the actual produce was, what the Bazaar rates were at the time of cutting, and what the expenses were ; the titles advanced by the cultivators may be just the same as in the case of money rents, evidence of the same nature may be resorted to.

Nerick-i-kunkoot. This again is a legal term. The landlord in order to save the expense of watching the crop from the time of its cutting to its being thrashed, assesses it when standing, obtains from the cultivator an acknowledgment of the assessment mutually agreed on, and by this the accounts are subsequently adjusted. Where disputes subsequently arise regarding this, an action is brought, *Kunkoot ke nerick se*, or *Kunkoot ke hisáb se*, to determine what the assessment was, or ought to have been ; if no written acknowledgment was entered into, or if it is disputed, oral evidence regarding the particular crop or those round it is generally all that is procurable.

Nerick-i-khaneh shumarree. Where cultivation extends over hills or places not easily accessible for purposes of assessment, revenue is assessed on the families or the males of each family ; this mode of taxation is rapidly disappearing. It may be observed here, that tenures which lapse by dereliction or through default of heirs, revert to the zemindar ; if a cultivator dies heirless, the zemindar may dispose of his tenure to the best advantage to himself, but if a new cultivator obtain possession without any stipulations as to rent, and retain it for two years, he cannot be ousted, but his title is not to hold the land at

the same rates as the former tenant, but at the village rates. If a ryut be absent from his cultivation, he may continue his title to it by payment of the prescribed rent, but should balance of rent remain unpaid at the end of any year, the zemindar may proceed against him under the provisions of Sec. XV. Reg. VII. 1799, and having obtained a decree oust him, under Sec. XVIII. Reg. VIII. 1819.

Nerick-i-Bunkur is the rate paid for the privilege of cutting wood, grass, or similar products from particular localities; it is occasionally paid in the shape of rent for the ground occupied, occasionally in that of the price of the articles carried away. Generally a particular tract of country yielding Bunkur produce is let at a fixed rent to a farmer, who levies imposts from the men who carry away the different products, according to the quantity which they take; the first description of rent will be dealt with simply as any other farm, the second affecting the interests of the ryuts will depend very much on local usage; although it is doubtful whether this can ever have been so completely established as to constitute any prescriptive right to a fixed rate. In fact it is generally levied rather as a toll at the different points of export than as rent, and it does in reality differ from rent, as being rather the price of the article produced, than merely the lease of the hire of the land, although this latter is included in the price, the land being occupied in the production. Nature herself is the labourer, and the fortunate landholder is permitted to enjoy the fruit of her toils; but Nature contenting herself with production, has left the appropriation or reaping to man; and generally speaking, the labor of collecting and conveying spontaneous produce is far greater than of reaping a crop which is the result of cultivation; and this labor which has before been mentioned as calculated to affect rent, will materially influence that of land yielding Bunkur produce. The two distinct operations of collecting and conveying, are frequently performed by different classes of labourers; where this is the case, the landlord avails himself of the occasion of the transfer from one to another, as a convenient opportunity of collecting his rent, and perhaps of taking some from each party. The woodcutter brings his log of timber or bundle of bamboos to the purchaser at the outlet of the estate, whatever it may be, the ghat or pass in a mountainous country, the river or roadside in a forest, or an alluvial chur; the purchaser takes it from each individual paying some

portion of the price to the landlord, and adding a small sum on his own account for the privilege of storing his purchases on the property until they are completed; the rent here includes the hire of the soil, the value of the product, and in addition to it is charged a rent for the ground on which the collected store is deposited, pending transit. Bunkur literally signifies wood or belonging to the forest, but mineral products, generally speaking, found in woody places, all go to make up Bunkur rents; that is to say, they form part of the assets on which the rent of a Bunkur farm is calculated, such as chalk, coal, stones, chunam: these again have separate subdivisions, but the principle on which the rent is to be calculated is the same. With reference to the two latter, labour is bestowed not only in the collection of the article, but in its preparation for the market; this preparation consists in the reduction of the bulk, and the landlord compensates himself for what he loses in not taxing it in bulking by participating to a certain extent in the increased value of the article after it has undergone preparation. For the manufacture of the limestone into lime he makes a charge for the wood consumed in the heating of the kiln, and for the kiln itself; as he has the power of dictation, he generally prefers avoiding the risk of failure from injudicious heating, by taking the kiln according to the quantity of lime which it is estimated to yield rather than wait for the lime itself, hence this rate is generally levied on the kiln at so much per hundred maunds. Bunkur rates being generally levied as a toll, disputes regarding them seldom come before the Revenue Courts, except when disputes arise between the landholder and farmer, and these will of course depend on the terms of the lease. A Bunkur ryut is seldom a resident on the estate; in fact, Bunkur estates are generally unfitted for continued residence; the want of scientific knowledge by which to avail itself of the treasures of the hill and forest have served to depreciate the value of Bunkur property in the estimation of natives far too low: as the products become of more importance, laws will become necessary for the protection of each peculiar class, instead of their being left now in indiscriminate confusion, all classed under one unmeaning title, Bunkur.

Nerick-i-churhaie, the rate of rent paid for the right of pasturage in extensive forests on waste lands. Trials will come before the Revenue Courts, rather regarding the right to levy, than the rate

at which the levy is to be made. In deciding cases, care must be taken lest the plaint, and the whole proceedings be fictitious, and lest there be collusion, the object being to establish a title by obtaining proof of having collected, or having been declared entitled to collect, or with a view of evading the resumption laws.

Nerick-i-julker, is the rate of rent paid for the right of fishery in particular waters; it is levied generally at so much a boat, and is modified according to the description of net used. Local usages prevail with reference to this rent, differing in almost every river, and every bend of each river; but litigation is less frequent with reference to these than perhaps any other class of rents.

Engagements to cultivate under a lease become void with the expiry of the lease itself; but if the zemindar instead of ousting the ryut at once, serve him a notice for the enhancement of his rents under the provisions of Reg. V. 1812, the service of the notice brings the case under the jurisdiction of the Revenue Courts, and if a balance remain unpaid at the end of the year, the zemindar cannot plead this balance as giving him a right to oust the cultivator under the provisions of Section X. Reg. IV. 1840, before the Magistrate; but having brought himself under jurisdiction of the Revenue Court, must sue for it and obtain a decree under Section XVIII. Reg. VIII. 1819. The occupancy for the year without opposition by the zemindar would appear to give the tenant a title from sufferance, which is defined by Blackstone: "Where one comes into possession of land by a lawful title, but keeps it afterwards without any title at all, as if a man takes a lease for a year, and after a year is expired continues to hold the premises without any fresh lease from the owner of the estate:" and the reason is, because the tenant being once in by a lawful title, the law (which presumes no man in the wrong) supposes him to continue upon a title equally lawful, until the owner of the land prove it to be wrongful. Now the Magistrate can only support the zemindar in the exercise of undoubted rights; he by his own neglect suffered a certain cause for doubt to supervene, and must clear it away by suing for any balance of rent as by his notice may remain due at the end of the year; at the end of the second year the cultivator has acquired a title of settlement since the expiration of his lease.

A resident cultivator considering himself aggrieved by ejection, has a right to a trial of his grievance. If the ejection be accompanied with violence he may apply for redress to the Magistrate, who besides inquiring into the violence, will on plaint being made under Reg. IV. 1840, call on the zemindar to prove his claim to the exercise of the right of summary ejection, and should it appear that the cultivator had no claim, he will permit his summary ejection; but should the case appear to be of the nature of those above described, he will either maintain the cultivator in possession, or stay the zemindar from disposing of the lands for a fixed period, within which he will instruct the cultivator to bring an action to try the ejection under the 5th clause, Section XVIII. Reg. VIII. 1819, and the construction put upon it by the Circular Orders of the Dewannee Adawlut, dated 15th November 1833, which states that, "The declaration that it is illegal to oust resident cultivators except under circumstances, necessarily implies a remedy in case of the contravention of the rule, &c. &c."

The general laws of the country, if fully enforced, afford a degree of protection to the cultivator which is rather weakened than strengthened by a special contract or lease; even in the formation of new settlements the cultivators will be found unwilling to enter into written engagements, they have a sort of instinctive feeling that it is not their interest to do so; and they dislike the signature of the counterpart of a lease, which renders obligatory on them the annual payment of sums for the realization of which they have no security but the crop dependent on the contingencies of the season: in settlements besides the general laws of the country in their favour, they have the special protection afforded by Section XI. Reg. VII. 1822, and are well aware that if unable to assert their privileges under those general laws, that the mere possession of a pottah will not render them much stronger, but will have very much the effect of a special bond for a portion of a debt, which without affording any additional guarantee for the payment of the amount included in it, serves to throw doubt on the remainder which is excluded, and will tend to deprive them of the benefit of the protection to be derived from the general law with regard to any privileges not enumerated in it.

Notices and Descriptions of various New or Little Known Species of Birds. By ED. BLYTH, Curator of the Asiatic Society's Museum.

[Continued from p. 212, ante.]

After the first part of this article was consigned to the press, an opportunity occurred of looking over Gould's magnificent 'Birds of Australia,' up to the nineteenth number of that work; and a few of the notes I took from it, bearing on the Ornithology of India, may here be introduced.

Among the *Falconidæ*, a second species of my genus *Butaëtus** (ante, p. 174,) occurs in the *Aquila morphnoides*, Gould, P. Z. S. 1840, p. 161; and the slight enlargement and elongation of the central occipital feathers recurs in it, which I mentioned to exist in fine specimens of *B. pennatus*. *Falco hypoleucos*, Gould, (ibid.), which that naturalist considers to be the Australian representative of the Jer Falcon of the north, is very closely allied to *F. juggur* of India, from which it only appears to differ in having a dark forehead, no trace of supercilium, and the broadly white patch on the cheeks greatly diminished. *Milvus affinis*, Gould, the common Kite of Australia generally, excepting Van Diemen's Land, appears to be quite identical with *M. govinda* of India; but in that case the cere and feet are coloured too deeply: I can perceive no other difference whatever. *Elanus axillaris* (v. *notatus*, Gould,) is certainly distinct from *E. melanopterus* of India; and a beautiful new species is figured as *E. scriptus*. I am also informed by Mr. Strickland, that the American *E. dispar* has the tail wholly white, and a smaller beak than *E. melanopterus*: so that four species of this generic form are now established. A South African specimen of *E. melanopterus*, in first plumage, presented to the Society by Lord Arthur Hay, appears to me to be identical with the bird of India, although his lordship inclines to a different opinion.

In the *Athene strenua*, Gould, we have an Owl of the largest size, yet strictly pertaining to this genus of (generally) very diminutive Owls: and the *Athene? connivens*, (Lath.) Gould, *Ath. maculata*, (V.

* This name must yield to *Hieraëtus* of Kaup (1844); which I learn from Mr. G. R. Gray's extremely useful illustrated work on the genera of birds, seventeen numbers of which are now before me, and from these I shall have occasion to append some notes to the present paper. Mr. Gray merges *Hieraëtus* in *Aquila*.

and II.), and *Ath. boobook*, (Lath.), evidently pertain to Mr. Hodgson's genus *Ninox*.*

Caprimulgus macrurus, Horsfield, is figured as an inhabitant of Port Essington, in North Australia; and the species would seem to be the same as that which I have referred to *macrurus*, p. 206, ante: the general colour, however, would appear to be scarcely so dark as in the Malacca specimens, and I do not understand the second white mark represented upon the breast of the male. The two sexes are figured, both having the white marks on the wings and tail, but diminished in extent in the female: and looking to a series of specimens of the nearly allied *C. albonotatus*, it would seem that the females vary in this respect, many having certainly more or less of this white, which confirms Captain Tickell's statement of the sexes of this bird resembling each other. In the common small *C. asiaticus* of India, the male and female appear always to resemble; and I now suspect that this will prove to be not unusually the case in *C. albonotatus*, *C. macrurus*, and *C. mahrattensis*.†

To the genus *Collocalia*, Mr. Gould erroneously refers two species of true Swallow, allied in nidification as well as plumage to *Hirundo capensis* and *H. daurica* (v. *erythropygia*); and a third Swallow is figured by him as *H. neoxena*, which appears to me perfectly identical with a specimen of *H. pacifica*, (v. *domicola*, Jerdon,) from the Neilgherries. A new *Cypseline* genus—*Atticora*—is founded on *Hirundo fasciata*, Gm., and two or three other South American species, to which is added one Australian representative as *At. leucosternon*.‡

* This group *Ninox* is not admitted by Mr. G. R. Gray, who refers as many as forty-four species to *Athene*! I certainly consider the former to be a good division.

† It may be here remarked, that *Caprimulgus indicus* is far from being so rare in Lower Bengal as I formerly supposed; inasmuch as specimens may be often procured in the Calcutta Botanic Garden. *C. monticolus* will also probably turn out to be far from scarce when I come to discover its proper haunts, which I suspect are upon open ground. The only two specimens of the latter which I have obtained were both caught alive by bazar shikarrees. Among Sir A. Burnes's drawings is a figure of a species, (from "Lakat,") nearly allied to *C. monticolus*, but still more uniform in its colouring which approaches to sandy,—this being a tolerably sure indication of the prevalent hue of its haunts;—but if correctly figured, (and it is stated to be "natural size,") it would be a smaller bird than *C. monticolus*, having the wing but nine inches and a quarter long. A skull and feet in Burnes's collection are, however, quite undistinguishable from those of *C. monticolus*.—The Society has just received another closely allied species from Java.

‡ Mr. G. R. Gray refers *Atticora* to the Swallow group; but I have little doubt that he is wrong. Not only is the whole appearance of Mr. Gould's figure of *At. leucos-*

Acanthylis caudacuta (v. *australis*), p. 211 and note, *ante*, would seem identical with the Himalayan species, only the middle of the back is represented scarcely whitish enough, and the Australian bird is figured to have a white mark above the bill, which does not exist in the Society's Himalayan specimens: but as the nearly allied *Ac. gigantea* varies in this respect, as shewn by specimens in the Society's museum, it is evident that no importance can be attached to this slight difference.*

Cypselus pacificus, (Lath., v. *australis*, Gould,) p. 212 *ante*, from Penang, accords minutely with Mr. Gould's figure of an Australian specimen (except that the chin is not so purely white), and it may therefore be considered as rightly determined.

The *Totanus glottoides*, Vigors, is still regarded by Mr. Gould as distinct from *T. glottis*, and is figured by him as Australian: so also is *Coturnix chinensis*, which is common in parts of India, and seems to be found through all the intervening countries into Australia; and Mr. Gould admits it doubtfully into his Australian genus *Synoicus*. To *Hiaticula nigrifrons*, (Cuv.), v. *melanops*, (Vieillot), must be referred the *Charadrius russatus* of Jerdon. *Hæmatopus longirostris* of *ternon* quite *Cypseline*, but he has distinctly represented *ten* tail-feathers, of very *Cypseline* character: whereas all the species of the Swallow group have invariably twelve tail-feathers.

Hirundo neoxena Mr. Gray identifies with *H. javanica* of Vigors and Horsfield, referring them both to *H. pacifica* of Latham; and *H. domicola*, Jerdon, will come in as another synonyme: but *H. jewan* of Sykes is considered by him to be the true *H. javanica* of Sparrman, though I suspect its true name will be *H. gutturalis*, Scop., v. *panayana*, Lath.; an identification I owe to Prof. Behn. Mr. Gray agrees with me (I may even say as a matter of course) in referring Mr. Gould's two supposed species of *Collocalia* to true *Hirundo*.

Of *Collocalia*, Mr. Gray enumerates four species, viz. *C. esculenta*, (Lin.), *C. nidifica*, (Lath.), *C. fuciphaga*, (Thunb.), and *C. troglodytes*, G. R. Gray, which last he has figured. The Nicobar species which I referred to *C. esculenta*, appears to be the *fuciphaga* of Dr. Horsfield's list, but not of Shaw; the latter approaches much nearer to *C. concolor*, (Jerdon), which last will, I suspect, bear the prior name of *brevirostris*, McClelland, *P. Z. S.* 1839, p. 155. The Nicobar species (true *fuciphaga*?) is of the same size as *C. troglodytes* figured by Mr. G. R. Gray, but has a much larger head than is represented in that figure (doubtless incorrectly), and its upper-parts are dusky-black, slightly glossed with green and purple, the lower brownish with white abdomen. The name *fuciphaga* is, of course, an absurdity: and on perusal of my remarks on the composition of the edible nests (p. 210, *ante*), our contributor Mr. Laidley remarked to me, that he had arrived at the same result from chemical analysis, which shewed the constituent elements to be those of inspissated saliva.—The Society has just received the Nicobar species from Java.

* *Ac. caudacuta* of Australia, and *Ac. nudipes* of the Himalaya, are enumerated as separate species by Mr. G. R. Gray.

Australia is distinct from the Indian Oyster-catcher, which has a much longer bill, and I shall describe it by the name *H. macrorhynchus*. *Himantopus leucocephalus*, Gould, of Australia and the Malay countries, occurs also in India, but is much rarer than *H. candidus*. *Nettapus coromandelianus* of Australia, as figured by Mr. Gould, agrees exactly, both in size and markings, with the common Indian species. In the genera *Hylacola* and *Calamanthus* (*Praticola*, Sw., 1837), a very close approach is shewn to the Indian *Pellornium* (vide *J. A. S.* XIII, note to p. 372); but the latter seems sufficiently distinct, being also a larger bird, with a longer bill than in its Australian affines.* Lastly, I shall only notice *Sericornis*, Gould, exemplified by his *S. citreogularis*, as a generic type to which a common Himalayan species (sent by Mr. Hodgson with the name *Tarsiger chryseus*,) would seem to appertain.† The latter may be described as follows :

Sericornis (?) *chrysea*, (Hodgson.) Length about five inches and a quarter, of wing two and three-quarters, and tail two and a quarter, its outermost feathers a quarter of an inch less : bill to gape three-quarters of an inch, and tarse an inch and one-eighth. Male having the entire under-parts, shoulder of wing, more or less of the scapularies, the rump, and basal three-fourths of all but the middle pair of tail-feathers, brilliant yellow ; the last being also yellow at base, and there is a narrow supercilium of the same : rest of the tail, and the lores and ear-coverts, black : alars, and their larger coverts, blackish, narrowly edged with dull yellowish ; and the head and back are dusky olive, with dull yellowish-green margins to the feathers : bill dark above, below pale ; and the legs pale. In younger specimens, there is less yellow on the scapularies and wings : and the females have the whole upper-parts uniform dark greenish-olive, with merely a more yellowish shade over the rump ; the under-parts sullied yellow ; and tail dusky-olive, marked as in the male, but with considerably duller yellow. The young of the year differ from the female in being spotted above like a young Robin.

Mr. Hodgson informs us that this bird "inhabits the central hills of the Himalaya ; is shy, solitary, and bush-loving, constantly descend-

* In the sequel (p. 600), I have added a new genus to this group,—*Malacocincla*, nobis.

† Other species of *Sericornis*, however, figured by Mr. Gould, render this generic identification more doubtful.

ing to the ground from its perch : it feeds and breeds on the ground, making a compact saucer-like nest of moss. Eggs verditer." In form it comes very close upon *Calliope*, and approaches still nearer to *Cyanecula*, from which its principal structural distinction consists in the more rounded form of its wings and tail, and the somewhat reduced degree of firmness of its plumage ; besides which the yellow colouring is a character of the present group. The wings have the fourth, fifth, and sixth primaries subequal and longest, and the first about half their length.

Referring again to the first part of this paper (p. 182, *ante*), it may be remarked that Mr. Jerdon now considers the *Scops sunia* and *Sc. pennata* there described, to be different phases of plumage of the same species. Until I obtain further data, I shall refrain from adding to what I have already stated on the subject ; but may remind the naturalist reader, that I have described three distinct states of plumage of the *Sc. sunia*,—viz. the first or nestling garb, an intermediate dress in both sexes, and the mature livery which is almost uniform deep chesnut-ferruginous : so that the variation to grey would certainly not appear to be dependent either on age or sex.*

Of *Syrnium nivicolum* (p. 185), a second specimen has been obligingly presented to the Society (with numerous other valuable bird skins), by Mr. L. C. Stewart, of H. M. 39th Foot, believed to be from the Western Himalaya, where many of that gentleman's specimens were procured. It completely establishes the species, as distinct from *S. aluco* ; and it differs from the specimen already described in the general darker tone of colouring of its upper parts, occasioned by the greater predominance of the fuscous ground-tint, while the scapulary spots are whiter, and there is also an intermixture of white on the facial disk, and the lower parts are less tinged with fulvescent. It is probably a male, and the other a female.

With respect to the species of *Brachypternus*† (p. 194), I find that a third occurs in the Scindian representative of the common *Picus* (*Br.*) *aurantius*. With the dimensions of the latter, it differs from it in the reduced quantity and intensity of the yellow on the upper parts,

* Mr. G. R. Gray identifies *Sc. pennata* with the European species, and adopts *Ephialtes*, K. and B., as the generic name.

† Lord A. Hay thinks, judging from recollection, that *P. micropus* is the common species of S. India, *P. bengalensis* apud Jerdon.

which is also quite free from any orange tinge, and the whitish markings on the wings are much more developed;—distinctions which hold true in both sexes. As I have elsewhere described the species, the present indication of it will here suffice.

I am also informed that the *P. badius* apud Jerdon, of S. India, differs alike from the true *P. (Micropternus) badius* of the Malay countries, and from *P. (M.) phaeiceps*, nobis, of Bengal, Nepal, Assam, and Arracan. Accordingly, we now distinguish three species respectively of the subgenera *Micropternus*, *Brachypternus*, and *Tiga*; which certainly confirms the propriety of these groups being thus separated.*

Centropus (p. 202). Lord Arthur Hay has obtained a very splendid bird of this genus from Malacca, which is evidently the *Cuculus bubutus* of Raffles's list, stated to be "not much less than two feet in length;" but it is not Dr. Horsfield's Javanese bird, described to be eighteen inches and a half long (*Lin. Trans.* XIII, 180), which is precisely the length of the Indian species (vide *J. A. S.* XI, 1099). This fine species may be appropriately termed

C. eurycercus, A. Hay: being particularly remarkable for the great breadth of its tail-feathers, each of which measures two inches and three-quarters across. Length about twenty-three inches, of which the middle tail-feathers measure half, the outermost being four inches and three-quarters shorter; wing eight and three-quarters; bill to gape nearly two inches (in a straight line), and three-quarters of an inch in vertical height, being much larger than in *C. philippensis*; tarse two and a quarter; the long hind-claw but an inch. Colour as *C. philippensis*, but the back and wings are of a brighter and more chesnut brown, and the tail is glossed with steel-blue instead of green. *C. philippensis* and *C. Lathamii* are also met with at Malacca, and both appear to be much commoner there than the present species. I have also lately received certain information of a *Centropus*, of the alleged size of *C. bengalensis*, (and doubtless that species,) occurring in the Calcutta Botanic Garden. My informant brought me *C. Lathamii* from the locality, and stated that he had often there observed the minute species, but was unaware

* Mr. Jerdon writes me word—"The *Picus moluccensis* figured in the *Planches coloriées* is certainly distinct from that of Hardwicke and Gray: the former being of course true *moluccensis*, and I suspect the same as your *canicapillus*."—A Javanese specimen just arrived is very doubtfully distinct from that of S. India: and I may add, that in Dr. Cantor's Malayan collection is a superb fourth species of *Tiga*.

of its being at all a desideratum. It is therefore probable that I shall soon obtain specimens. (*C. bicolor*, Lesson, has just been received by the Society, with the specific name *celebensis*, probably of Temminck. It is a very distinct species.)

We may next pass to the paper on *Leiotrichanæ*, &c., and *Fringillidæ*, Vol. XIII, pp. 933 *et seq.*, to notice some further identifications which have occurred to me.

Leiothrix furcatus, v. *sinensis*, must be designated *L. luteus*, (Scopoli).

Siva occipitalis, nobis, (p. 937,) makes so considerable an approach in plumage and general character to the *Yuhina? flavicollis*, Hodgson, *As. Res.* XIX, 167, that their near affinity is indisputable; and this brings the latter species, for which Mr. Hodgson now proposes the generic name *Ixulus* (vide sequel, p. 562), within the confines of the group of *Leiotrichanæ*, where the slender form of the bill approximates it to *Minla*, from which it is barely separable, and it thence carries on the series of affinities to *Yuhina* and also to *Myzornis* (*J. A. S.* XII, 984). The *Siva occipitalis*, however, differs greatly in the form of its bill from *Ixulus flavicollis*, that of the former being fully as stout as in *Proparus*, in which group it might very well be classed: and as regards other distinctions, the crown is tinged with rufous, the slightly reverted crest is less developed, the narrow blackish streak from the corners of the mouth does not occur, the under-parts are much more sullied or less whitish, and the wings are longer; yet, notwithstanding these various differences, the resemblance is at first sight not inconsiderable. It may be added, that the name *Certhiparus*, which Mr. Hodgson wishes to substitute for *Minla*, is objectionable on other grounds than as concerns the mere alteration; it having been previously applied (apparently by the Baron de la Fresnaye) to a group of New Zealand *Meliphagidæ*.*

* Vide G. R. Gray, in Dicffenbach's 'New Zealand,' II, 189 (1843). This naturalist, by the way, reunites the whole of Mr. Hodgson's divisions of *Leiotrichanæ* under *Leiothrix*; and he gives four species of *Pteruthius*, adding as a fifth the *Piprisoma agilis*, which has no sort of relationship to the group. The male of *Pt. rufiventer*, nobis, is beautifully figured, but the sexes of this species are so different, that the female should certainly have accompanied it. As for his mixing up the *Leiotrichanæ* birds with *Pardalotus*, *Pachycephala*, &c., I am quite of Mr. Strickland's opinion, that the group *Pachycephalinæ* so formed is an extremely forced and unnatural one; and that such is usually the case, when too little attention is paid to the geography of genera thus brought together.

The *Parus* (?) *minutus*, Jerdon, (p. 944,) is probably identical with *Erpornis zantholeuca*, Hodgson, XIII, 380.

P. nuchalis, Jerdon, is a new species from Southern India. Length about five inches, of wing two inches and three-eighths, and tail two inches; bill to gape nearly half an inch, and tarse five-eighths. Colour black above, as also a broad mesial stripe from throat to vent; cheeks, sides of neck, and of the breast and belly, with the under tail-coverts, white; a white spot also at the nape, as in *P. ater*, &c., a band of the same across the wing, and the tertiaries very broadly margined externally and tipped with white; outermost tail-feather white, except its inner border, the next with the outer web and contiguous portion of the inner web white, and the third with the outer web white at tip and for most of its basal half: bill black; and legs plumbeous. Inhabits the Eastern ghauts.

Of *Ploceus philippinus*, (p. 944,) Mr. Strickland writes me word, that the Indian bird, and not Dr. Horsfield's Javanese species, is the true *Loxia philippina* of Linnæus. It extends its range to Malacca.

Passer montanus (p. 947,) proves to be the more common species of Sparrow in Arracan generally, about 60 of this species occurring to one of *P. domesticus*, var. *indicus*: Lord Arthur Hay has also received it from Malacca;* and hence a doubt arises whether it be not the Siamese Sparrow mentioned by Crawfurd. *P. montanus* is also the common Sparrow of Afghanistan.

The division *Gymnoris*, Hodgson (p. 948), I shall now adopt, on the authority of a second species sent on loan by Lord Arthur Hay, and believed to be from S. Africa.

G. superciliaris (?), A. Hay. Length about six inches and three-quarters, of wing three and three-quarters, and tail two and a half; bill to gape eleven-sixteenths of an inch, and tarse three-quarters. Plumage as in *G. flavicollis*, with the same yellow spot in front of the neck; but there is no maroon colour on the shoulder of the wing, the anterior whitish bar crossing the wing is narrower, there is a conspicuous whitish supercilium, and the dorsal feathers have the terminal third of their inner web dull dusky-brown, imparting somewhat of the streaky appearance common to most Sparrows: the crown and upper portion

* I hear that a Sparrow of some species, most probably this one, abounds in Singapore.—The Society has just received *Ploceus philippinus* apud Horsfield from Java.

of the ear-coverts are dark brown, contrasting strongly with the whitish supercilium: bill formed exactly as in the other species.

To *Amadina maja*, (p. 949,) should have been added, as a synonyme, *Loxia leucocephala*, Raffles. *A. acuticauda*, Hodgson, is the *Loxia molucca*, Lin., and will therefore range as *Amadina molucca*. Specimens from Malacca are perfectly identical in species with those procured in Nepal by Mr. Hodgson.*

For *Erythrospiza* (p. 952), must be substituted the prior name *Carpodacus* of Kaup: and for *Corythus*, *Strobilophaga* of Vieillot.

Carduelis caniceps (p. 955). The Afghan specimen described, was in summer aspect of plumage, when the winter edgings to its feathers had been cast. Its length should have been printed *five* inches and three-quarters. One from the western Himalaya, in winter garb, is rather smaller, agreeing in length of wing with Gould's figure, and the plumage has a browner tinge, less relieved with white on the fore-neck and breast than in the Afghan summer specimen, or than in *C. communis*; but the colour is much less dark than in Gould's figure, the red surrounding the base of the beak is also much less developed, and there is no black streak passing backward from the eye.

An oriental species of *Ligurinus*, or Greenfinch, exists in the *Loxia sinensis*, Lath., founded on the *Verdier de la Chine* of Sonnerat. It agrees in size, and in the Goldfinch-like marking of the wings, with *L. xanthogrammicus* of the Andes.

To the species of Bunting enumerated in pp. 957-8, may now be added

E. melanops, nobis. Length six inches, of wing two and seven-eighths, and tail two and five-eighths; bill to forehead seven-sixteenths, and tarse three-quarters of an inch. Head, neck, throat and breast, dull green, paler below, and a little streaked with dusky on the crown; lores, chin, and around the eyes, black; belly and lower tail-coverts sulphur-yellow, the flanks greenish with dusky streaks: scapularies and inter-scapularies rufescent, with a black central streak to each feather;

* Lord A. Hay writes me word—"I have specimens of *Amadina punctularia* v. *nisoria* from Malacca, and they seem distinct from our Indian bird; being much lighter-coloured, and the markings seem differently formed."—Should they prove distinct, the Indian species would perhaps rank as *Am. lineoventer*, (Hodgson:) but I remember comparing Malayan with *Bengal* specimens some time ago, and observing no difference between them.

the wings blackish, each feather margined with rufescent, palest at the tips of the greater and second range of coverts: rump plain rufescent-greenish: tail dusky, with the terminal two-thirds of its outermost feather white, except the final third of the narrow outer web; and about a third of the inner web of the penultimate feather is also white, obliquely separated: bill dusky, the lower mandible whitish except at tip; and feet pale. From Tipperah, whence a fine specimen has been presented to the Society by M. Courjon. This can hardly be the male of *E. sordida*, *J. A. S. XIII, 958*.

It may be that I was wrong in referring a Peshawur female in the collection formed by the late Sir Alexander Burnes and Dr. Lord, to the *E. icterica* of Central India, in *XIII, 957*; for both sexes of the Peshawur bird are figured in a drawing made under Sir A. Burnes's superintendence; and though the specimen has certainly every appearance of being the female *E. icterica*, the male is not represented to have any distinct rusty tinge on the head, which is nearly concolorous with the back, except that the *pale* yellow hue of the under-parts is made to surround the ear-coverts, and thence to ascend on the crown, posterior to the eye, so as to divide the brown of the crown from that of the occiput. Should it prove to be a distinct species, and not merely *icterica* represented indifferently, it might bear the name *E. personata*.*

The following is a remarkable genus, the affinities of which have puzzled me a good deal, but (now that the Society's specimens have been mounted, and I can judge better of their characters,) I incline to think, with Mr. Hodgson, that it is really related to the Larks, though tending to assume the character of some of the *Crate-ropodinae*, as *Pellornium* and its allies, yet without being truly affined

* Since writing the above, Mr. Stewart has favored us with many specimens of *E. icterica* from the vicinity of Agra, where the species appears to be very common; and the females seem to me to be decidedly identical in species with Burnes's Peshawur female, though the back is less rufescent. Burnes's specimen is, however, in old and worn plumage, whilst the Agra specimens have their feathers newly put forth.

I may likewise notice here, that Lord Arthur Hay has obtained *E. Lathamii*, male and female, from Hong Kong; the species certainly identical with the Indian one.

These, and all the other Indian Buntings which I know of, pertain to the division *Euspiza* of the Prince of Canino, at least according to the classification of Mr. G. R. Gray, which I am not altogether satisfied with. The type of *Euspiza* is *Emb. melanocephala* of Scopoli; which is distinct enough in the form of its beak.

to the latter. Mr. Hodgson terms it "a most interesting form, tending to relieve the insulation of the *Alaudinæ*."

Heterura, Hodgson. "Bill moderate, strong, compressed, straight, but with the culmen and compressure curved, and *gonys* ascending; its base clad with rigid plumes as far as the advanced *nares*, and the tip for the most part decidedly inclined and notched; *tomix* scarp and trenchant: gape wide and hispid. Wing short, hardly passing the base of the tail, but *Alaudine* in all its details; the first and fifth quills equal, and somewhat shorter than the second, third, and fourth, which are longest; centrals notched; the tertiaries equal to the primaries. Tail rigid, somewhat gradated from sides as well as centre, and the separate plumes possessing the divaricate structure, with acutely wedged or hastate points. Legs and feet strong, ambulant: tarse plus the middle toe and nail, strongly scutellate to the front, smooth and cultrated to the back. Toes medial, compressed: the laterals equal; the central sufficiently long; the exterior basally connected to the mid one; the hind least: nails simple, fully curved.

"*Hab.* Hills only. Not very gregarious: frequent trees, and breed and feed on the ground."

H. sylvana, Hodgson. "General aspect and colours *Alaudine*, but the body below completely striped. Above brown-black, largely margined with ruddy-luteous [on the sides of the feathers]: below rufescent-luteous, immaculate on throat, but beyond it streaked centrally with more or less wide blackish lines; a dark moustache, and pale brow: lateral caudals more or less albescent: legs fleshy-green; bill horn-colour, with dusky ridge. Length seven inches and a quarter to seven and a half: bill eleven to twelve-sixteenths of an inch; tail two and three-quarters to two and seven-eighths; closed wing two and seven-eighths to three and one-sixteenth; tarse under an inch; central toe to nail thirteen-sixteenths, hind ditto eleven-sixteenths; weight an ounce." Inhabits Nepal.*

I will next briefly review the *Nectariniidæ*, which were last taken in hand in Vol. XII, pp. 969 to 984, inclusive.

* The *Coryphidea baghaira* (p. 961, *ante*.) is identified by Mr. G. R. Gray with *Alauda brachydactyla*, Auct.; and as this constitutes the type of *Calandrella*, Kaup, the species will accordingly range as *Cal. brachydactyla*. The form is quite distinct from *Alauda*, to which Mr. G. R. Gray refers it; as any one familiar with the living bird must at once acknowledge. Mr. Gray's Indian *Alaudæ* are in sad confusion.

To commence with the genus *Arachnothra*: my *A. latirostris* (p. 982) must be referred to *A. modesta*, (Eyton, p. 981); and of the other species briefly described by that gentleman, who erroneously referred them both to *Anthreptes* of Swainson, the Society has now received two fine specimens from Malacca, which may be thus described:

A. flavigaster, (Eyton). Length about eight inches, of wing four, and tail two inches; bill to forehead one and three-quarters; and tarse seven-eighths. Colour plain olive-green above, paler below, and yellowish on the belly and under tail-coverts: feathers around the eyes, and a tuft near the angle of the jaw, brighter yellow: bill dusky, paler beneath, and the legs have probably been bright yellow. A young specimen is smaller, with the wing three inches and five-eighths long, and the rest in proportion: the plumage is less compact, but the colouring of the upper parts is brighter olive-green, and of the abdominal region much brighter siskin-yellow: in other respects it is similar.*

Nectarinia mahrattensis, (p. 978,) will bear, as its earliest specific name, that of *asiatica*, (Lath.) It is also the *Certhia mahrattensis*, Lath., and *C. saccharina* of Shaw.† The range of this species extends eastward into Arracan, where also the *N. Gouldiæ* is met with; but not *zeylonica*, which is replaced by *Hasseltii*, as *asiatica* there begins to be by *flamaxillaris*, which last, in its turn, is replaced towards the Straits by *pectoralis*.

N. jugularis, Vieillot, apud nos, (p. 979,) is a new species, and may now rank as *N. flamaxillaris*, nobis: the length of its tail, misprinted "under half an inch," should have been given as under an inch and a half. The allied *N. pectoralis*, Horsf., is common at Malacca, and in the Nicobar islands: a specimen in spirit from the latter group measuring four inches long, by six in spread of wing.

Nect. (v. Anthreptes) phænicotis, (p. 979,) ascends so high as Tipperah; and also certain other Malayan birds (as *Calornis cantor*‡ and *Brachypodius melanocephalus*) occur there, which do not appear to have been met with further to the west.

Nect. Phayrei, nobis, p. 1008, proves (as I formerly suspected) to

* The Society has now two, if not three, additional species of this genus from Java, which require more study than I can at present bestow on them.

† *N. strigula*, (Hodg.) is the young.

‡ Lord Arthur Hay has pointed out to me some distinctions between the Tipperah and Arracan *Calornis*, and the closely allied species of the Straits.

be *N. Hasseltii*, Tem., and is common also at Malacca. It is the *Certhia sperata*, var., of Raffles's list.

Nect. (v. Anthreptes) frontalis, nobis. Differs from the female of *N. lepida (v. javanica)*, Horsf., in having the bill rather shorter; the upper parts of a richer, somewhat darker, and more aureous, olive-green; and the lower parts greenish-grey, without any yellow: the throat, and cheeks especially, inclining to be cinereous: the frontal feathers alone are scale-like, and of a brilliant steel-green. Length about five inches, of wing two and three-eighths, and tail two and one-eighth; bill to gape three-quarters of an inch; and tarse nine-sixteenths. From Singapore.

Dicæum chrysochlorum, nobis, p. 1009, extends its range southward to Malacca.

D. erythronotum, p. 983, bears the prior name of *cruentatum*, (L.)*

D. Tickellia, nobis, is the *Certhia erythrorhyncha*, Lath., a name, however, which is too inaccurate to be retained. Young birds, when they leave the nest, have the beak of a flesh-red colour, except just the tip; and a specimen in this state is figured among Buchanan's drawings, with the reddish colour of the bill exaggerated; and it was probably upon a copy of this very drawing that Latham founded the species. Being the *Nectarinia minima* of Tickell (not of Sykes), it might therefore be termed *Dicæum minimum*, (Tickell). The range of the species extends into Tipperah and Arracan.

D. ignicapillum of Eyton is the *Prionochilus percussus*, (Tem.) Strickland: and in form and colouring it bears much the same relationship to *Piprisoma agilis*, (Tickell) nobis, XIII, 395, that the bright-coloured Malayan *Dicæa* do to the dull-coloured species which alone inhabit the peninsula of India. To this genus *Prionochilus*, Str., P. Z. S. 1841, p. 29, are referred the various Malayan species which M. Temminck has strangely classed in *Pardalotus*, as his *P. thoracicus* and *P. maculatus*, in addition to the *percussus*: and the so-called *Pardalotus pipra* of Lesson's *Traité* (stated to be Himalayan), upon which the latter naturalist has since founded his *Idopleura*, turns out to be

* Dr. Horsfield informs me, in *epistolâ*, that the Javanese species which he referred to *cruentatum* is distinct from the Bengal one, or true *cruentatum*. It is probably, therefore, one the Society has just received from Java, which has the head, neck, throat, breast, whole inter-scapularies, rump, and upper tail-coverts, scarlet, wings and tail blue-black, and lower parts pale ashy, except the under tail-coverts which are white. *D. cruentatum* is common at Malacca.

South American ; which satisfactorily disposes of all the Asiatic species that had been assigned by authors to the very peculiar Australian genus *Pardalotus*, warranting and confirming our suspicions in other instances, wherein the French naturalists more particularly have strangely inclined to disregard some of the most striking exemplifications of the geographical limitation of particular forms.

Two well marked species of *Prionochilus* are now before me, which may be described as follow :

1. *Pr. percussus*, (Tem.) : *Dicæum ignicapillum*, Eyton. Length about three inches and seven-eighths, of wing two inches to two and a quarter, and tail an inch and a quarter ; bill to gape seven-sixteenths, and tarse half an inch. Colour dull lavender-blue above, the lower parts bright yellow, passing to whitish on the lower tail-coverts ; a large igneous-red spot on the vertex, and another in the centre of the breast ; and a white streak from the side of the lower mandible, divided from the yellow of the throat by another of the same colour as the upper parts. Bill black above, more or less whitish beneath ; and legs lead-coloured. Mr. Eyton describes the female to be ashy above, with the under-parts yellow irregularly streaked with cinereous ; and a red spot on the vertex. The young are olive-green above, paler below ; and it is doubtful, from a specimen before me (which has advanced in its moult), whether there is either coronal spot, or more than a trace of one, or of yellow on the under-parts, in its first plumage. From Malacca.

2. *Pr. thoracicus*, (? Tem.) The appropriateness of the name leaves little doubt of this species being properly identified ; and it is not unlikely that *Pardalotus maculatus*, Tem., refers to the female or the young. Length four inches and a quarter, of wing two and three-eighths, and tail an inch and a quarter ; bill to gape half an inch, and tarse rather more. Head, neck, breast, and throat, black, with an igneous-red spot on the vertex, and a very large patch of the same on the middle of the breast ; wings and tail also black, some of the feathers slightly margined with olive ; back greenish-yellow, brightening on the rump, and becoming vivid yellow on the upper tail-coverts, and on the shoulder of the wing ; axillaries, and fore-part of the under surface of the wing, white ; and the remainder of the lower parts yellow, tinged with olive on the flanks. A presumed female has the entire upper parts olive-green, with an igneous coronal spot, less red than in the

male; a whitish streak from the base of the lower mandible, separated by an olive-green streak from the slightly yellowish white hue of the middle of the throat; and the under-parts yellow, brightest along the centre, and streaked laterally with olive-green; lores whitish, and the axillaries and under surface of the wing white, as in the male. A presumed young male is olive-green above, the crown ashy, with a central spot of olive-green; middle of throat white, its sides ashy, with no decided white streak from the base of the lower mandible: the lower parts are yellow, mixed with olive-green, and having an indication of the red pectoral spot of the adult male. Also from Malacca. The mature male here described is in the collection of Lord Arthur Hay.

The curious species described as *Pachyglossa melanozantha*, H., in *J. A. S.* XII, 1010, is thus characterized by Mr. Hodgson:

Pachyglossa, H. "General structure of *Myzanthé** (*J. A. S.* XII, 983), but much less delicate. Bill conspicuously short, thick, conic and blunt, with the gonys ascending strongly; yet typically denticulate on the tomial margins. Tongue as long as the bill, thick, fleshy, with cartilaginous bifid tip. Wings with the first quill very minute and spurious: the three next subequal and longest. Legs and feet as in *Zosterops*, strong: tarse to sole just plus the middle toe and nail. Toes short, depressed, unequal; the fores much basally connected; the hind smallest, with or without the nails: nails very falcate, stout, equal.

"*P. melanozantha*, mihi. Length five inches; bill seven-sixteenths; tail one and three-quarters; wing under three inches; tarse nine-sixteenths; central toe and nail the same; hind three-eighths of an inch. Blue-black, paler below, and a broad white stripe passing from chin to breast, whence to the vent inclusive is rich yellow. Alars and caudals dusky. The extreme caudals with a large white spot near the tips inside. Bill dusky-blue, with fleshy base. Legs plumbeous. Female duller-hued, and more or less shaded with olive.

"These birds are peculiar to the hills. They are shy, and make ingenious pendulous nests, like the *Myzanthé*. Their food consists of small insects and viscid berries, which latter they swallow entire. The upper mandible is (typically) denticulated."

As many as six generic forms certainly require to be distinguished in this *Dicaeum* group, which are as follow:—1, *Myzomela*, exemplified by *M. sanguinolenta* and other Australian species; 2, *Dicaeum*, as *D.*

* Unfortunately, this name too closely resembles *Myzantha*, of the *Meliphagidæ*.

cruentatum, *D. concolor*, *D. chrysochlorum*, &c. ; 3, *Myzanthé*, Hodg., ante, as *M. hirundinacea* of Australia, and *M. ignipectus* of the Himalaya ; 4, *Pachyglossa*, Hodg., ante, *P. melanozantha* ; 5, *Piprisoma* (XIII, 314), *P. agilis* ; and 6, *Prionochilus*, ante. The three first differ chiefly in the degree of elongation of the bill,* and the two last are also allied together ; and they combine to form a natural and satisfactory group.

Of the remarkable form noticed as *Myzornis pyrrhoura* in XII, 984, I find also the following description by Mr. Hodgson :

Myzornis, H. "General structure of *Yuhina* (*As. Res.* XIX, 165), but slighter. Bill moderately slender, more or less cylindrical, and arcuate with both tips down ; the upper conspicuously longer, and furnished with one sharp tooth : nares lineo-lunate, typically large and soft : wings, tail, and feet as in *Yuhina* ; but the feet stronger, and the wings and tail more feeble. Tongue brushed. Hab. Northern and central hills [of Nepal.]

"*M. pyrrhoura*, mihi. Bright parrot-green, more or less merged in rusty on the throat and vent. Outer margins of caudals, and of mid-alars, fiery-red, or carmine : wings tipped with white. Lores black, and black streaks on the crown. Legs fleshy : bill black. Length five inches and a half ; bill eleven-sixteenths ; tail one and five-eighths ; wing two and seven-sixteenths ; tarse fifteen-sixteenths ; central toe and nail five-eighths ; hind nine-sixteenths. *Remark*.—These birds have the manners and general structure of *Yuhina* : but they want the Bulboul-like crest common to all the species of that type : their more slender bill is unidentate only, and their tarse is longer, being a third plus the middle toe and nail ; it is also stout, and quite smooth. We may here add, that our *Sibia* is another truly meliphagous form, proper to these hills."

Yuhina, Hodgson, since termed by him *Polyodon*, is re-defined as follows, and a third species described ; the *flavicollis*, passim, being removed, and regarded as a distinct type, *Ixulus*.

"Bill moderate, much depressed as far as the large nares, compressed beyond. Tip of the upper mandible inclined, with three [minute] teeth on each side : gape bristled, reaching to the eyes : brows soft. Nares large, fossed, membranous ; the aperture lunated

* This elongation of the bill is, I suspect, merely further carried out in *Drepanis*, Tem., v. *Melithreptus* (in part), Vieillot.

by the nude soft membrane. Tongue as long as the bill, moderately extensible, cleft nearly to the base, and the prongs convolved and filamentous, forming a full brush: wings medial, the fifth quill longest. Tail nearly even and divaricate. Alars and caudals wedged and mucronate. Legs and feet strong and repert. Types, *gularis*, *occipitalis*, and *nigrimenta*: the two former published; the last new.

“*Y. nigrimenta*, H. Above olive-brown; below rufescent-yellow; cheeks and throat white; tip of chin, and lores, black: crest slaty-blue, legs fleshy. Bill dusky above, ruddy-fleshy below. Length four inches and a half; bill five-eighths of an inch; wing two inches and one-eighth; tail one and five-eighths; tarse three-quarters of an inch; central toe and nail half an inch; hind seven-sixteenths. [*Non vidi.*]

“These birds are genuine *Meliphagidæ*, with the brushed tongue of the type of that group. They feed on tiny insects that harbour in the cups of large deep flowers, such as the Rhododendrons, and to which the birds cling with their strong feet. They also take berries occasionally. They are exclusively monticolous, like our *Saroglossa* (*J. A. S. XIII*, 367), another Meliphague in the guise of a Stare, and therefore probably related to the *Etourneau verdâtre*.*

“*Ixulus*, H. Bill short, as in *Brachypus* [*Pycnonotus?*], but less stout, and the nares larger and more membranous. Tongue simple. Head crested. Wings rather short, more or less acuminate, the first three quills gradated, and the three next subequal, the fifth being usually longest. Tail moderate, subfurcate. Legs and feet suited for clinging. Tarse elevate, stout, considerably plus the mid-toe and nail.—Anteal toes short, unequal, depressed, and considerably connected at their bases. Hind large, broad, equal to inner fore without the nails, and to the outer with them. Nails *Parian*.

“Type *I. flavicollis*,” olim *Yuhina flavicollis*, *As. Res. XIX*, 167. The near general approximation of my *Siva occipitalis* to this species has already been noted (p. 552), although the beaks of the two birds are very different.

The Indian *Zosterops*, (*XII*, 985,) it now appears, has been designated *maderaspatanus* by mistake. “There is properly,” writes Mr. Strickland, “no such specific name as *maderaspatanus* for a

* I differ from Mr. Hodgson respecting the affinities of the *Saroglossa*, which I consider to be decidedly a *Sturnidous* bird, with meliphagous adaptations.—*Cur. As. Soc.*

Zosterops. Linnæus only wrote it in his *Syst. Nat.* by a slip of the pen for *madagascariensis*, as the bird he called *Motacilla maderaspatana* was from Madagascar, and Gmelin properly corrected the name to *madagascariensis*." The Indian species is the *Sylvia annulosa*, Var. *A*, of Swainson's Illustrations, and will now rank as *Z. annulosus*, (Sw.) It seems peculiar to the hilly parts of the country, from the Himalaya to Ceylon.

A second described oriental *Zosterops*, inhabiting Java and the Philippines, and probably the Malay countries generally, is the *Dicaeum flavum* of Horsfield, *Lin. Tr.* XIII, 170. Dr. Horsfield informs me, that "it is nearly allied to the Indian species, but distinct."

Z. nicobaricus, nobis, is a third common in the Nicobar islands. Length four inches, by six in extent of wings; closed wing two inches; tail one and a half; tarse five-eighths of an inch; bill to gape nine-sixteenths. Nostrils covered as usual by a soft impending scale; and the tongue subdivided at tip into a pencil of thin filaments. Upper parts greyish olive-green, greenest on the forehead, wings, and upper tail-coverts: throat and front of neck pale yellowish, the breast and under-parts whitish, except the lower tail-coverts which are light yellow: eyes surrounded, as usual, by silky white feathers; the lores and beneath the white orbital feathers blackish, the former surmounted by a yellowish line. Bill dusky, the base of the lower mandible pale; and the legs albescent-plumbeous. Upon dissection, the muscular coat of the stomach of a bird of this species was found to be considerably more developed than in *Nectarinia*, and both stomach and intestines contained numerous hard black seeds, about the size of No. 8 shot: these had probably been contained in a pulpy berry; and the fact of their passing the intestines is worthy of notice, as a Thrush fed upon haws invariably ejects the stones by the mouth.

There are two or more species of this genus in the Isle of France: viz.

Z. curvirostris, nobis. A good deal allied to the last in plumage, but having a more slender and distinctly incurved bill, rather longer than usual in the species of *Zosterops*; the tongue subdivided at tip into numerous filaments, forming a tolerably large brush. Length about four inches, of wing two inches, and tail one and a quarter; bill to gape five-eighths, and tarse three-quarters of an inch. Orbital feathers conspicuously white as usual. Head and fore-part of the neck dull ashy, tinged slightly with green; the rump, wings, and tail,

brightish olive-green: under-parts ashy, more or less pure, and passing to rufescent-whitish on the belly; the lower tail-coverts bright yellow; and the throat whitish, slightly tinged with yellow in one of two specimens: bill dusky, the basal two-thirds of the lower mandible yellowish; and the legs pale.

The true *Z. madagascariensis* also inhabits the Mauritius: but this, as Mr. Strickland informs me, is a short-beaked species, and therefore cannot be the same as the foregoing; besides that the description of it does not sufficiently apply to *Z. curvirostris*.

Z. (?) borbonicus, (Brisson). This is nearly allied to *Zosterops*, but is without the white orbital feathers so characteristic of that genus; it has also much the look of the British *Curruca sylviella* (upon a superficial view), but has no particular affinity for the latter.* It is probable that some more immediate congeners of this bird inhabit Australia, where not only the genus *Zosterops* attains its chief development of species, but also more especially the great austral group *Meliphagidæ*, to which *Zosterops* strictly belongs. The present species is also from the Isle of France.

Genus *Phyllornis*, Boie, v. (subsequently) *Chloropsis*, Jardine and Selby. The gradual enrichment of the Society's museum enables me now to offer a more satisfactory synopsis of this genus than that attempted in XII, 955 *et seq.*

A. With thicker bills, the upper mandible abruptly bent over (more or less so, in different specimens,) and sometimes quite hooked at tip. The shoulder of the wing uniformly green with the rest. Peculiar to the Malay countries.

1. *Ph. Sonneratii*, (Jardine and Selby): *Ph. Mullerii*, Tem.; female, *Turdus viridis et Chloropsis zosterops* of Horsfield: young male, *Chl. gampsorhynchus*, Jardine and Selby.

2. *Ph. cyanopogon*, Tem.: female, (or perhaps young male,) *Chlo-*

* By the way, I may here notice that the *Curruca sylviella* (v. *garrula*), so called, of S. India, is conspicuously a larger bird than its European relative, having the wing fully two inches and three-quarters long, and the rest in proportion: the general tone of colour is also somewhat darker, and the bill and legs are proportionally larger and stronger, the tarse measuring from thirteen-sixteenths to seven-eighths of an inch. As for the roseate tinge on the under-parts mentioned by Sykes, this is common to fine specimens from either country. I certainly consider the Indian bird to be distinct, and shall therefore name it *C. affinis*.

Prof. Behn also informs me, that the species assigned to *C. orphea* by Mr. Jerdon, is not the true *C. orphea* of continental Europe.

ropsis mysticalis, Swainson (*Menag.* p. 296), and described as that of the next species (which was erroneously referred to *malabaricus*,) in *J. A. S.* XII, 957. Exactly resembles the preceding except in its much smaller size, the male having rather less black on the throat, but a larger and broader azure moustache: the female has the throat and under-parts yellowish, with the blue moustache less developed. Length six inches to six and a half, of wing two and seven-eighths to three and a quarter, and tail two and a half to two and five-eighths; bill to gape thirteen-sixteenths of an inch, and tarse five-eighths.

B. The bill tapering to its extremity, and slightly curved. The shoulder of the wing of an ultramarine colour, more or less extended. Hab., for the most part, India, Burmah, and probably China.

3. *Ph. cochinchinensis*, (Lath., Gm.), the adult male, and *malabaricus* apud Latham, the young male; *Chl. cochinchinensis*, Jardine's synopsis: *Verdin de la cochinchine*, Buffon; *Chl. malabaricus* apud nos, *J. A. S.* XII, 957 (nec fœm.), and probably of Eyton, *P. Z. S.* 1839, p. 102; probably also *Meliphaga javensis*, Horsfield. This is the only species of the present subdivision which I have seen from the Malay countries; and specimens from the vicinity of the Straits present a considerable approximation in the form of bill to the members of the preceding section, while those from Arracan have decidedly a more tapering bill, less abruptly curved at the tip, and approaching therefore to the Indian type of *Phyllornis*. If I am right in identifying the *Chl. malabaricus* apud Eyton with the present species (of which I have little doubt), that author states that "the female differs from the male in having the markings less distinct:" this is probably the case with the mature female; but what I suspect is a young female from Singapore has the forehead, throat, and region of the eyes, green, and a fulvous tinge on the crown only, not any below; and a presumed young male from Arracan has a strong fulvous tinge on the crown, neck, and breast, while the throat is greenish, with distinct verditer moustache, more developed than that of the female *cyanopogon*. In any state of plumage, the latter species may be readily distinguished from this other small one, by the total absence of blue on its wings and tail.

The three foregoing species are all common in the vicinity of the Straits of Malacca, and I doubt if any of the following occur in the Malay countries. The two next are proper to the peninsula of India, No. 4 only extending to the hill regions of Bengal.

4. *Ph. Jerdoni*, nobis: *Chl. cochinchinensis* apud Jerdon, *Catal.*: the male described as the female of the next, in *J. A. S.* XII, 956.

5. *Ph. malabaricus*, (Gm.); *le petit Merle de la côte de Malabar*, Sonnerat: *Chl. cæsmarhynchos*,* Tickell; *Chl. aurifrons* apud Jerdon, *Catal.*

And the two remaining species inhabit Nepal, Assam, Sylhet, and Arracan; No. 6 extending into Bengal.

6. *Ph. aurifrons*, (J. and S.); figured as *Chloropsis malabaricus* by Messrs. Jardine and Selby, as subsequently corrected by them in their synopsis of the genus.

7. *Ph. Hardwickii*, (J. and S.): *Chl. curvirostris*, Swainson; *Chl. cyanopterus*, Hodgson; *Chl. chrysogaster*, McClelland and Horsfield; and *Chl. auriventris*, Guérin.

I shall now essay to enumerate the Indian and Malayan Bulbouls, which are very numerous, and pertain to various genera.

To commence with the genus *Pycnonotus* of Kuhl, comprising *Hæmatornis* of Swainson, nec Vigors.

1. *P. bengalensis*, nobis: *P. v. Ixos cafer*, apud nos et alios, ante.† Bengal, Nepal, Assam, Sylhet, Tipperah.

2. *P. hæmorrhous*, (Lath.): *Hæmatornis pusillus et pseudocafer*, nobis, *J. A. S.*, X, 841, &c.; *cafer* apud Jerdon, *Catal.* Peninsula of India, and Arracan: common about Agra.

3. *P. jocosus*, (L.): *Gracula cristata*, Scopoli; *Lanius emeria*, Shaw.

* This unmeaning name, *cæsmarhynchos* (apud Tickell), *v. casmarhynchos* (apud Gray), is merely a misprint for *gampsorhynchus* of Jardine and Selby: vide Griffith's 'Animal Kingdom,' VI, 391.

† In a letter lately received from Lord Arthur Hay, his lordship says—"I have been inspecting Buffon's figure of the true *cafer* from the Cape, and it does not agree in the least with the Bengal bird." Mr. Strickland, judging from the admeasurements alone (in the *An. and Mag. N. H.*, Vol. XIV, 47), concluded them to be the same. The wide difference of habitat, however, would lead to a pre-supposition of their distinctness; and presuming that they do differ, I now propose for the common Bengal species, the specific name *bengalensis*. This name is, indeed, better applicable than such terms usually are, since it is very doubtful whether more than two species of the genus exist in Bengal, this and the *jocosus*, and the present one is by far the more abundant of the two. It is closely allied to *P. hæmorrhous*, from which it differs in its larger size, and the greater extent of the black colouring, which spreads over the whole neck (excepting the ear-coverts, which are brownish), and low upon the breast, the back and belly also being much darker than in *P. hæmorrhous*, but the feathers of these parts are similarly margined with greyish. Length nine inches and a half, by twelve and a half in spread of wing; the closed wing four inches, and tail the same.

India generally, extending eastward to Tipperah and Arracan, and thence southward to Penang and even Malacca.*

4. *P. monticolus*, (M'Clelland and Horsfield), *Proc. Zool. Soc.* 1839, p. 160. Said to differ from the last by having "a scarlet ring about the eye, but no tuft beneath this organ." Kossia mountains, Assam. It rather requires verification.

5. *P. crocorrhous*, Strickland, *An. and Mag. N. H.* 1844, p. 412: *Muscicapa hæmorrhousa*, Var. B., Gm.; *Turdus hæmorrhous*, apud Horsfield. Java.

6. *P. bimaculatus*, (Horsf.), *Lin. Tr.* XIII, 147. Java.

7. *P. goiavier*, (Scopoli): *Muscicapa psidii*, Gm.; *Turdus analis*, Horsfield. Malay countries generally.

8. *P. leucotis*, (Gould), *Proc. Zool. Soc.* 1836, p. 6. Common in Scinde, and I am informed also in Guzerat. It is likewise enumerated in a list of birds "collected in the north-western provinces of the Bengal presidency, in north latitude 29° to 31°, and east longitude 77° to 88°", and consisting chiefly of inhabitants of the plains, but with a few from the Himalaya, in *P. Z. S.* 1842, p. 92.†

9. *P. leucogenys*, (Gray), Hardwicke's *Ill. Ind. Zool.* Common in the Himalaya, and in Kashmir.

10. *P. flavirictus*, Strickland, *An. and Mag. N. H.* 1844, p. 413: *Tricophorus virescens*, Tem., apud Jerdon. Southern India.

11. *P. plumosus*, nobis. Length about seven inches, of wing three and a quarter, and tail three inches; bill to gape three-quarters of an inch; and tarse the same. This bird is remarkable for the extraordinary density and copiousness of its rump plumage, which has suggested the name bestowed on it. Colour of the upper parts darkish olive-brown, shaded with dull green, the wings and tail margined with brighter green; coronal feathers rounded and scale-like, of a cinerascens hue, slightly margined laterally with greenish; under-parts pale brown, lightest on the throat, and the lower tail-coverts slightly ochreous. Bill

* I have not actually compared Malayan with Bengal specimens, but have an impression that the crimson ocular tuft is considerably less developed in the former.

† In this list are several names, which, I suspect, require to be corrected: viz. "*Hirundo riparia*?" probably *H. sinensis*; "*Oriolus galbula*," probably *O. kundoo*; "*Malacocercus striatus*," probably *M. terricolor*; "*Ianthocinclæ leucocephala*," doubtless *Garrulax leucolophos*; "*Megalurus palustris*, Sykes," probably *Pellornium ruficeps*, which is *Megalurus ruficeps*, Sykes; and "*Centropus sirkee*," probably *Taccocua infuscata*, nobis.

dusky, and feet appear to have been reddish-brown. Two specimens are perhaps distinct, though very closely allied. In these the greenish tinge is wanting, even on the wings and tail, and there is no ashy tinge on the head, the feathers of which are much less scale-like; the lower tail-coverts also have a less decided tinge of ochreous, and the throat is much less albescent. In other respects they are similar. These are from Malacca, and the former from Singapore. Should they prove distinct, the second may bear the specific name of *brunneus*.* One or both are probably alluded to as one of two varieties of *P. goiavier*, (v. *Turdus analis*, Horsf.,) mentioned by Sir Stamford Raffles.

12. *P. flavescens*, nobis. So like the next in its general characters and colouring, that it might be supposed to be the female of that species, differing from the male in wanting the yellow spots on the throat, and the yellowish colour on the crown, were it not that the tail is always considerably more graduated, its outermost feathers measuring three-quarters of an inch shorter than the middle ones; whereas in *P. Finlaysoni* the difference is but half as much: it would, besides, be contrary to the analogy of all its congeners, for the sexes to present so marked a difference. Length about seven inches and three-quarters, of wing three and a quarter, and tail four inches; bill to gape seven-eighths of an inch, and tarse three-quarters of an inch. Colour dull greenish-olive above, the crown darker, with broader and more rounded coronal feathers than in *P. Finlaysoni*; alars margined with brighter yellowish-green, and caudals less decidedly: under-parts paler, mingled with dull yellow, imparting a streaky appearance; the vent and lower tail-coverts bright yellow, paling on the belly: lores blackish, surmounted with yellowish-white. Bill and feet dark. Hab. Arracan, where much less common than the next species.

13. *P. Finlaysoni*, Strickland, *An. and Mag. N. H.*, 1844, p. 411. Common in Arracan.

14. *P. zantholaimus*, Jerdon, *MS.* Length seven inches and a quarter and upwards, of wing three inches to three and a half, and tail three and a quarter to three and a half; bill to gape three-quarters of an inch to thirteen-sixteenths, and tarse three-quarters to seven-eighths. Upper parts ashy, tinged with green on the wings and tail, the crown yellowish-green, and throat and fore-neck pale yellow;

* Since the above was printed, I have received from Lord Arthur Hay a specimen of this *brunneus*, labelled by his lordship *Brachyopus modestus*, A. Hay.

lower parts of a lighter ash-colour than the back, the tibial feathers and under tail-coverts pale yellow, and all but the middle tail-feathers tipped with yellowish-white, increasing in quantity to the outermost: bill and feet dark. Hab. Southern India.

15. *P. melanocephalus*, (Gray), Hardwicke's *Ill. Ind. Zool.*: *Bru-chypus plumifer*, Gould, *Proc. Zool. Soc.*, 1837, p. 137; *Vanga flavi-ventris*, Tickell, *J. A. S.* II, 573. Himalaya, Assam, Sylhet, Tippe-rah, and Arracan; also Central India.

All the above are in the Society's museum, with the exceptions of *P. crocorrhous*, *P. bimaculatus*, and the somewhat dubious *P. monticolus*. Also a common Chinese species, the *P. sinensis*, (Lath.), founded on *le Gobe-mouche verdâtre de la Chine* of Sonnerat, and figured as *Turdus occipitalis*, Tem., by MM. Eydoux and Gervais, in the 'Voyage de la Favorite'. Dr. Cantor procured this bird in Chusan, and the Society's specimens are from Macao. That figured by the French naturalists cited was obtained at Manilla. In general, however, the ear-coverts have a central whitish spot, instead of being wholly blackish, as represented in the coloured figure adverted to. Another common Chinese species, which is in the collection of Lord Arthur Hay, is *le Gobe-mouche à tête noire de la Chine* of Sonnerat, v. *P. atricapillus*, (Vieillot).*

The following Malayan species are, I presume, to be added to those already noticed.

Ixos virescens, Tem. (*p. c.* 382, fig. 1), which would seem to be allied to *P. plumosus*.

I. chalcocephalus, Tem. (*p. c.* 453, fig. 1).

Lanius xanthogaster, Raffles, *Lin. Tr.* XIII, 309. This, however, is more doubtful as a true *Pycnonotus*.

Also two species from Southern India (in the Mysore district, bordering the Neilgherries), which Mr. Jerdon procured, but unfortunately

* Since writing the above, *P. atricapillus* has been received on loan from Lord A. Hay. Its place in the series is between *P. jocosus* and *P. leucotis*, but with the crimson lower tail-coverts of the first, though more brilliant. Length nearly nine inches, of wing three and three-quarters, and tail four inches; bill to gape seven-eighths, and tarse the same. Colour of the upper-parts light brown, with greyish edgings to the feathers, the upper tail-coverts and the entire under-parts brownish-albescent; cap glossy black, the feathers not much elongated; chin, lores, and beneath the eyes, also black; wings deep brown, the feathers margined paler; and tail dusky-black, gradually deeper on the terminal half, the caudal feathers being all tipped with white: bill black, and legs dusky-black.

lost the specimens before he took a description of them. Coloured drawings of them, however, were taken by a native painter in Mr. Elliot's service, and from these Mr. Jerdon drew up the following notices. Vide 'Madras Journal', No. XXX, p. 168. They were about six and a half or seven inches in length, the second being rather the smaller.

"*Yellow-eared Bulboul*. Above yellowish-green, beneath yellow; ocular region black; a plume of soft loose feathers over the ear tipped with yellow.

"*White-eared Bulboul*. Above light green, beneath greenish-yellow; head, neck, and breast, dusky grey; ear-spot white."

Lastly, as a very aberrant species, I shall provisionally refer to this genus the bird considered by Mr. Jerdon to be the *Turdus indicus*, Gm., and ranged by him in the same division with *Pycnonotus flavivictus*; but which Mr. Strickland thinks is considerably too small for Gmelin's *indicus*, and has therefore given it a new name, describing it as *Criniger? ictericus*, *An. and Mag. Nat. Hist.*, 1844, p. 411. The only specimen in the Society's collection, and which was presented by Mr. Jerdon, accords in its dimensions with those given by Mr. Strickland; but Mr. Jerdon gives the length as from seven and a half to eight inches, wing four inches, and tail three and a half, which last admeasurement only, holds true in the Society's specimen: and if the species ever attains those dimensions, I think there can be no objection to identifying it as the *indicus* of Gmelin.*

Alcurus striatus, (Blyth) Hodgson, *J. A. S.* XI, 184. This differs little from *Pycnonotus* in form of bill, but its large size and thick heavy body ally it to *Criniger* (v. *Tricophorus*), in which genus I originally placed it, while Mr. Hodgson first assigned it to *Pycnonotus*. It does not, however, range well with any other species known to me, and at my recommendation Mr. Hodgson applied the name *Alcurus* to it, which I here adopt.

Genus *Criniger* (subsequently *Tricophorus*), Temminck.

1. *Cr. ochrocephalus*, (Gmelin): *Tricophorus crispiceps*, nobis, *J. A. S.* XI, 204. Malay countries generally, and the Tenasserim provinces. It is a favorite cage bird with the Malays.

* It is remarkable that a common African Bulboul (*Pycn. chrysorrhæus*) has recently turned up in Ireland. Vide *An. and Mag. N. H.* 1845, p. 308: the whole group of Bulbouls being, otherwise, extra-European, and there is nothing approaching to the form in all America. Neither do I remember a single Bulboul genus in Australia.

2. *Cr. flaveolus*, (Gould), *Proc. Zool. Soc.* 1836, p. 6. Common in the Himalaya, and in the hill ranges of Assam, Sylhet, and Arracan. An allied South African species is figured by Dr. Andrew Smith, as *Tricophorus flaviventris*.

3. *Cr. Tickelli*, nobis: doubtfully referred to *Ixos virescens*, Tem., by Capt. Tickell, *J. A. S.* II, 573, but evidently a distinct species of the present genus, allied to the preceding one. From near Midnapore. (*Non vidi.*)

4. *Cr. gularis*, (Horsfield), *Lin. Trans.* XIII, 150. Allied in plumage to *Cr. flaveolus*, but crestless, and the beak remarkable for its *Vanga*-like, or *Lophocitta*-like, form, with the tip of the upper mandible abruptly bent over. Malay countries generally.

N. B. I may here remark, that the genera *Lophocitta*, *Vanga*, and *Prionops*, form together a peculiar group of Bulbous, of which the only known oriental species is *Lophocitta galericulata*, (Cuv.), common near the Straits of Malacca: but the *Lanius coronatus*, Raffles, *Lin. Tr.* XIII, 306, would seem to be nearly allied.* The habits of *Prionops talacoma*, as described by Dr. A. Smith, are quite those of the ordinary Bulbous.

Spizixos, nobis, *n. g.* General structure of *Pycnonotus*, but differing greatly in the shortness and (for a member of this group) extraordinary thickness of the bill, the lateral outline of which approaches that of *Conostoma æmodius*, Hodgson, *J. A. S.*, X, 856, except that the tip of the upper mandible curves more decidedly downward over that of the lower mandible, being also pointed and distinctly notched, with a sinuation corresponding to the notch in the lower mandible: as viewed from above, however, the resemblance to the beak of the *Conostoma* ceases, for that of the present bird narrows evenly to a point from a tolerably wide base: the ridge of the upper mandible is obtusely angulated, and it is distinctly arched, rising at base where concealed by the feathers of the forehead. Rest as in *Pycnonotus*, but approaching to *Criniger*.

Sp. canifrons, nobis. Length about eight inches, of wing probably

* Mr. G. R. Gray, I observe, gives, as synonymes of *Lophocitta galericulata*, the *Lanius scapulatus*, Licht., *L. coronatus*, Raffles, and *Vanga cristata*, Geoff., figured in Griffith's 'Animal Kingdom'; but the figure adverted to has a much flatter bill, which is coloured white, and the primaries are coloured rufous. Mr. G. R. Gray refers *Lophocitta* to the Jay group, in which I cannot agree with him.—The Society has now received *Lanius coronatus*, Raffles, which is obviously the female of *Loph. galericulata*.

three and three-quarters (but the first primaries were growing in the specimen), and of tail three and a half: bill to forehead a little exceeding half an inch, and to gape three-quarters; tarse also three-quarters of an inch. General colour bright olive-green, becoming yellowish-green and more vivid on the rump and margins of the primaries, and inclining also to yellow on the belly and more decidedly on the lower tail-coverts: forehead and chin pale ashy; the nape, with the sides and front of the neck, somewhat darker, passing into blackish on the throat; and the crown black, its feathers lengthened to form a crest nearly an inch high: tail-feathers largely tipped with blackish. Bill yellow; and legs brown. Hab. Cherra Poonjee, or the hill ranges bordering on Sylhet to the northward.

Hemixos, Hodgson, *n. g.* "Bill to gape rather longer than the head, [moderately slender,] inclining to arch, with terminal notch, and erect, entire, trenchant *tomia*. Tongue cartilaginous, and simply bifid. Rictus bristled. Nares lunate, lateral, shaded above by a small unarched nude membrane, which is set over by small nareal bristles. Legs and feet very short, but stout: the tarse strong and smooth. Toes short, very unequal, depressed; the fores basally connected, the outer one as far as the joint, the inner less so. Nails strong, acute, and highly curved. Wings medial, round, acuminate; the fifth quill longest: the first two much, and the two next slightly, gradated. Tail ample, very firm, even, but inclining to furcation.

"*H. flavala*, *mibi*. Length eight inches and a third; expanse twelve inches; closed wing four inches; tail three and a half; bill to gape an inch; tarse (to sole) thirteen-sixteenths; central toe nine-sixteenths; outer seven-sixteenths; inner three-eighths; hind five-sixteenths. Weight 1 oz." General colour ashy, with dusky wings and tail, the former having the secondaries and tertiaries, with their great range of coverts, broadly margined with bright greenish-yellow, and the tail a little tinged with the same externally: throat and lower tail-coverts white; the belly greyish-white, and the breast of a paler ash-colour than the back: lores and streak from base of lower mandible black; the ear-coverts brown, and crown dusky-greyish, the coronal feathers lengthened and pointed, as in *Hypsipetes*. Bill black, and legs plumbeous.

"This type," remarks Mr. Hodgson, "is compounded of the characters of *Hypsipetes* and of those of the Bulbous, between which it claims a place. Its manners, like its form, are intermediate. It feeds mostly

on pulpy berries, but likewise takes soft and imperfect insects. It does not sing, nor is caged; and it seems to be wholly confined to the hills, being unknown below. The sexes are alike in colouring, but the male is rather the larger bird. The stomach is muscular, and of considerably unequal thickness in its outer coat; the inner being tough and striate. Intestinal canal eight inches and a half, the cæca very small and rudimentary. Contents of stomach commonly berries, rarely soft and imperfect insects, and also some perfect and hard ones chiefly in winter." (Hodgson's MSS.) It appears to be very common along the sub-Himalayan ranges, extending to those of Assam, Sylhet, and Arracan.

Iole, nobis, *J. A. S.* XIII, 386. This distinct form, I am now satisfied, falls under the *Bulboul* group, being allied to the preceding, and to *Hypsipetes*. The coronal feathers are pointed, as in both; and the beak is that of *Hypsipetes*, shortened and widened, and thus deviating in the Flycatcher direction; the whole form being also shortened, or as in an ordinary *Bulboul*.*

I. olivacea, nobis, *J. A. S.* XIII, 386. Common at Malacca. Fine specimens attain a length of seven inches and a half, wing three and a half, and tail three and a quarter.

I. virescens, nobis. Length about six inches and a half, of wing three inches, and tail the same; bill to gape seven-eighths of an inch, and tarse eleven-sixteenths. Colour olive-green above, paler and more yellowish below, the throat inclining to albescent, and the lower tail-coverts tinged with ochreous, as is also the tail: a slight shade of the same prevails upon the crown, back, and wings. Bill dusky above, pale below; and feet light brown. Younger specimens have the throat more yellowish, and the coronal feathers are less pointed and distinct. Common in Arracan.

I. cinerea, A. Hay. For the loan of an example of this fine species I am indebted to Lord Arthur Hay. It has the *Hypsipetes* character of the coronal feathers more developed than in either of the others. Length about seven inches, of wing three and three-quarters, and tail three and a quarter; bill to gape seven-eighths, and tarse three-quarters of an inch. Upper parts cinereous-brown, the forehead and

* This species will have been named by M. Temminck, as also my *Tephrodornis grisola*, *J. A. S.* XII, 180, *Phænicura leucoptera*, XI, 952, and *Muscicapula melanoleuca*, (Hodg.), XII, 940; as all of these have now been received by the Society from Java.

above the eye ashy, which also margins the pointed feathers of the crown; throat, middle of belly, and lower tail-coverts, white, the flanks and across the breast pale ash-brown. Bill and feet dusky, the latter having apparently been brown. From Malacca.

Hypsipetes, Vigors. The species of this genus exhibit a considerable gradation: the first two being typical, with sub-furcate tail, a character which is less marked in the second. These have also coral-red bills, ashy plumage, and black crown.

1. *H. psaroides*, Vigors. Common in the Himalaya, extending to the hill ranges of Assam, Sylhet, and Arracan.

2. *H. neilgherriensis*, Jerdon. Neilgherries and Ceylon.

3. *H. ganeesa*, Sykes: figured in the 2nd series of the 'Illustrations of Ornithology', by Sir W. Jardine and Mr. Selby. This species I have never seen. It is proper to Western India, and is probably common in the Mahabuleishwa hills.

4. *H. McClellandii*, Horsfield. Bill dusky, paler below: wings and tail green, the latter nearly square, but having its two or three outermost feathers successively a trifle shorter. This species takes the same range as *H. psaroides*.

From the above, we pass to more aberrant species, with the bill stronger, and the tail shorter and more rounded.

5. *H. philippensis*, Strickland, *An. and Mag. N. H.* 1844, p. 413.

6. *H. malaccensis*, nobis. This approaches nearly to the description of the last, but has the crown of the same olive-green with the back, and no trace of rust-colour on the cheeks and chin. Length about eight inches and a half, of wing four inches, and tail three and a half, its outermost feathers a quarter of an inch less: bill to gape an inch and one-eighth; and tarse three-quarters of an inch. Upper parts dull olive-green, the wings and tail brownish-dusky, margined with the colour of the back: throat and breast ashy, with whitish centres to the feathers, the abdomen and lower tail-coverts dull white: bend of the wing underneath, and the axillaries, pale yellow. Bill and feet horn-coloured. Feathers of the crown pointed, but this character is less developed than in the more typical species. In two specimens, some old unshed secondaries and wing-coverts have a rufescent tinge, but there is no trace of this in old birds. The rictal bristles are considerably more developed than in the typical species, (as in *Hemixos* and *Iole*,) while in *H. McClellandii* they are intermediate. Common at Malacca.

A specimen from the Nicobars is perhaps the young, having the wing but three inches and a half long, and the secondaries, tertiaries, and edges of the primaries, rufous-brown; tail slightly tinged with the same: coronal feathers tinged with dusky-ash, and less pointed; the throat and fore-neck white, tinged with yellow; and the rest of the under-parts mixed yellow and white, with olive on the sides of the breast: bill also shorter, tinged with yellow, and approaching in form to that of the next group, as indeed does the whole figure of the bird; so much so, that if the above characters prove to be permanent, I would propose for it the name *Ixocincla virescens*.

A form requiring, I think, distinction from *Hypsipetes*, may be designated

Ixocincla, nobis. It differs from *Hypsipetes*, in its more bulky form, stouter and more meruline bill, and in the greater size of the legs and toes; but in other respects is nearly allied.

I. olivacea, (Jardine and Selby); the female erroneously figured as *Hypsipetes ganeesa*, in the *Ill. Orn.*, 1st series, pl. CLXVIII, and (as I am informed) subsequently named *Hyps. olivacea* in the second series of the same work, where a figure of the true *H. ganeesa* is given. This bird has a much more meruline aspect than in true *Hypsipetes*, and it is known as the *Merle* to the colonists of the Isle of France. Length eleven inches and a half, of wing five and three-eighths, and tail four and five-eighths; bill to gape an inch and three-eighths, and tarse an inch. Male having the upper-parts dusky, the feathers margined with dark dingy greenish; wings and tail uniform dusky-brown, the tertiaries slightly margined with ashy: cap blackish, the feathers pointed as in true *Hypsipetes*; lores deeper black, and a slight grey supercilium from the nostrils to the occiput, lighter-coloured from the nostrils to the eye: under-parts uniform dusky ash-colour, purer on the throat, and paling on the belly and under tail-coverts, which last have a faint tinge of ferruginous: bill bright orange-yellow; and the legs appear to have been yellowish-brown. Female paler, with the greenish margins to the feathers much more developed, and the ash-colour confined to the throat, ear-coverts, and front of the neck.

Turdus borbornicus, Lath., is perhaps a second species of this type.

The generic name *Brachypus*, it seems, must now be abandoned, at least in Ornithology, and it appears never to have been employed in a very definite signification. At all events, very different forms of

Bulbous have been brought together under this appellation. Swainson gives *Turdus dispar*, Horsf., as the type; and Gray and Gould have applied it to species of true *Pycnonotus*; viz. *Br. leucogenys* and *Br. melanocephalus*, Gray, in Hardwicke's 'Illustrations,' and *Br. plumifer*, Gould, a synonyme of the second species cited: *P. leucotis*, however, is referred by Gould to *Ixos*; and his *Br. gularis* would seem to be a true congener of *Br. dispar*, (Horsf.,) Sw. To the type of the two latter species, I shall now provisionally give the name *Rubigula*; and then there remains that of *Lanius melanocephalus*, Gm., and its congeners, for which I can find no appellation, and shall therefore designate *Brachypodius*.

Rubigula, nobis. There is unfortunately no specimen in the museum from which I can define this group, but of the present series it makes the nearest approach to *Pycnonotus*, and has the rump uniformly coloured with the back, and a subquadrate tail, unlike the next form. The species (at least in the male sex) are remarkable for the brilliant ruby, or sometimes orange-ruby, hue of the throat, the feathers of which are rigid and glistening. Three species would appear to have been ascertained.

1. *R. dispar*, (Horsfield), *Lin. Tr.* XIII, 150. Malay countries.

2. *R. gularis*, (Gould), *Proc. Zool. Soc.* 1835, p. 186: *Brachypus rubineus*, Jerdon. Southern India.

3. *R. ———*, (Temminck), *p. c.* 382, fig. 2, as noticed in Griffith's 'Animal Kingdom,' VI, 390. Java.

Brachypodius, nobis.

1. *Br. entilotus*, (Jardine and Selby), *Ill. Orn.*, 2nd series. (*Non vidi.*) Hab. Malacca.

2. *Br. poiocephalus*, (Jerdon). Southern India.

3. *Br. melanocephalus*, (Gmelin): *Turdoides atriceps*, Temminck. Malay countries, extending northward to Arracan and Tipperah.

4. *Br. cinereoventris*, nobis. Differs from the last in having the nape and under-parts to near the vent of a deep ash-grey, and in its tail-feathers being less deeply tipped with yellow, which is also less bright, while the green of the upper parts is darker and much less yellowish. Length of the wing three inches and a quarter. Inhabits Tipperah.

5. *Br. tristis*, nobis. Also allied to *Br. melanocephalus*, but remarkable for its very plain brown colouring. Length about seven inches, or

nearly so, of wing three and a quarter, and middle tail-feathers three inches, the outermost five-eighths of an inch shorter; bill to gape three-quarters of an inch, and tarse half an inch. Colour plain brown above, darkest on the crown, wings and tail, the caudal feathers being dusky, with pale tips to the outer ones; under-parts paler, especially on the abdomen and throat: the plumage of the rump copious, as usual, and of a dusky colour, with dull yellowish-brown terminal fringes: bill deep horn-colour, and legs brown. For permission to describe this species, I am indebted to Dr. Theodore Cantor, whose very extensive collection of Malayan birds, &c. when these come to be unpacked and examined, will doubtless yield other novelties. *Br. tristis* inhabits Penang, where it is not very common.

Lastly, as a very aberrant species, may be provisionally ranged

6? *Br. ? criniger*,* A. Hay. The beak in this bird is vertically much less high than in the others, and altogether the species has a good deal the character of an *Alcippe* (nobis, *J. A. S.* XIII, 384), excepting in its very small tarsi and toes. Length about six inches, of wing two and seven-eighths, and tail the same, its outermost feathers a quarter of an inch less; bill to gape eleven-sixteenths, and tarse nine-sixteenths, the middle toe and claw but half an inch. Colour olive-green above, the coronal feathers, wings and tail, brunnescent; lores, ear-coverts, and the whole under-parts, yellowish, brightest on the belly and lower tail-coverts, passing to whitish on the centre of the throat, and mingled with olive-green on the breast and flanks: three outermost tail-feathers slightly tipped with yellowish on their inner webs. Bill dusky above, and pale below: legs and claws white. The coronal feathers are rounded, and of very different texture from those of the back; the rectal setæ are well developed; and there is a remarkable nuchal tuft of eight or ten straight black hairs, the longest of which are an inch and five-eighths in length in the specimen examined. Inhabits Malacca.

Microtarsus, Eyton, *Proc. Zool. Soc.* 1839, p. 102. This is nearly allied to the preceding group.

1. *M. melanoleucos*, Eyton, *ibid.* Common at Malacca.

Finally, *Ixodia*, nobis. Allied to the last genus, and in its squared tail to *Rubigula*. Bill small and compressed, widening very little at base, the tip of the upper mandible but faintly emarginated, and the gape

* Can this be the *Setornis criniger* of Lesson, the description of which I have not seen? It certainly ranges most properly as a distinct division.

unarmed. Rest as in *Microtarsus*; the head being crestless, and the coronal plumage uniform in texture with the other feathers. The lower tail-coverts of the only ascertained species are bright yellow, as in various species of *Pycnonotus*.

Ix. cyaniventris, (nobis,) *J. A. S.*, XI, 792: *Turdus*, No. 6, Raffles, *Lin. Trans.* XIII, 311. Common in the vicinity of the Straits of Malacca.

The next is a very remarkable group, which begins now to exhibit a variety of species, and of generic modifications of form, which will ultimately indicate its true place in the system. Not long ago, its only ascertained representative was the *Paradoxornis flavirostris* of Gould: but the following may now be referred to it.

1. *Conostoma amodius*, Hodgson, *J. A. S.* X, 856. Nepal.

2. *Paradoxornis flavirostris*, Gould, *P. Z. S.* 1836, p. 17; *Mag. Zool. and Bot.* 1838, p. 513; *Icones Avium*, pl. VI: *Bathyrhynchus brevirostris*, McClelland, *Ind. Rev.* 1838, p. 513. Especially characterized, generically, by the deep sinuation of the tomæ of its mandibles. Hab. Eastern Himalaya, and the mountains of Assam.

3. *Heteromorpha unicolor*, Hodgson, *J. A. S.*, XII, 448. Nepal.

4. *H. ruficeps*; *Paradoxornis ruficeps*, nobis, *J. A. S.*, XI, 177. Bootan mountains, and those of Arracan: Darjeeling.

Chleusasicus, nobis, *n. g.* Nearly allied to *Suthora*, Hodgson (*Ind. Rev.* 1838, p. 32, and *J. A. S.* XII, 449), from which it is distinguished by the considerably larger proportionate size of the legs, and by the rather larger and decidedly broader bill, the outline of which (as seen laterally) is still more tumid and anomalous-looking. Rest as in the other genera of the group.

5. *Chl. ruficeps*, nobis. Length five inches and a half, of which the tail measures two and three quarters; wing two and five-eighths; bill to forehead (through the feathers) three-eighths of an inch in a straight line; and tarse seven-eighths; the latter, with the toes and claws, thicker and stouter than in *Suthora*. Colour as in my *Heteromorpha ruficeps*, but the under-parts white, or less tinged with rufescent: *i. e.* the head and neck are bright ferruginous; the rest of the upper parts olive-brown, more or less inclining to ferruginous, especially towards the shoulder of the wing; and the entire under-parts are white: bill whitish horn-colour, apparently tinged with green in the recent specimen; and the legs appear to have been greenish-plumbeous. From Darjeeling.

6. *Suthora nipalensis*, Hodgson. Nepal, Darjeeling.

7. *S. fulvifrons*, Hodgson. Length five inches, of which the tail measures two and a half, its outermost feathers an inch and a quarter less; wing two inches and one-eighth; bill to forehead (through the feathers) a quarter of an inch; and tarse three-quarters. Upper parts light rufescent-brown, inclining to fulvous on the forehead, throat, and breast, with a broad pale duskyish streak along each scapular; secondaries, and base of caudals, broadly margined with bright chestnut-fulvous; the belly and flanks albescent-greyish. Bill pale, dusky along ridge of upper mandible; and legs light brown. From Nepal.

In XII, 443, I expressed an opinion that the division *Heteromorpha*, Hodgson, should merge in *Paradoxornis*; but I have since seen Mr. Gould's figure of *P. flavirostris* in the *Icones Avium*, which induces me now to follow Mr. Hodgson's arrangement, and also to refer No. 4 of the above list to his genus *Heteromorpha*.

The Indian Nuthatches and Tree-creepers may be enumerated as follow:—

1. *Sitta formosa*, nobis, *J. A. S.* XII, 938, 1007. Darjeeling. Beak scarcely at all compressed, and tapering almost evenly from the base, as seen from above.

2. *S. himalayana*, Jardine and Selby, *Ill. Orn.* 1st series, pl. CLXIV; to which I suspect must be referred *S. cinnamoventris*, nobis, *J. A. S.* XI, 459, though it does not quite accord either with the figure or description. The sexes differ as in *S. castaneoventris*, but the under-parts of the male are not quite so dark as in the corresponding sex of that species; and the deep rufous-brown colouring extends up to the throat, and in some specimens leaves little white on the chin, but the sides of the throat over the jaw are always white, as equally in *S. castaneoventris*. *S. himalayana* is stated to have the tail black, except its middle pair of feathers, the rest having "the basal half [probably a mistake] of the inner webs white; on the outer feather there is an oblique white bar, and the second has a round white spot on the tip of the inner web." In *S. cinnamoventris*, the outermost tail-feather has an oblique white bar towards the middle of its external web, and a larger white spot near the extremity of its inner web; and the next two feathers have each a successively smaller spot on their inner webs; the bill also is much longer than that of *S. himalayana* is represented in the figure, and is black with more or

less white at base; and the legs are certainly not yellow, as those of *S. himalayana* are coloured in the plate, but appear to have been plumbeous, with yellow on the soles. Another discrepancy of *S. cinnamoventris* with the figure of *S. himalayana*, consists in the black of the loreal region not extending upon the forehead, whereas it would appear represented to do so in the figure of the other. Nevertheless, I still suspect that they will prove identical. As for the *Indian Nuthatch* of Latham (*Gen. Hist.* IV, 73), it is not very clear to which species this is to be referred. The beak of *S. cinnamoventris* is distinctly compressed, but broad and stout. It appears to be peculiar to the Himalaya.

3. *S. nipalensis*, Hodgson, *J. A. S.* V, 779. Himalaya. A small species, with remarkably short bill, tapering evenly from the base, as viewed from above.

4. *S. castaneiventris*, Franklin, *P. Z. S.* 1831, p. 121; J. and S., *Ill. Orn.* 1st series, pl. CLXV. Hilly regions of the Indian peninsula, extending to the Rajmahl district of Bengal. Bill very much compressed and narrow.

5. *Dendrophila frontalis*, (Horsf.) Swainson: *Sitta corallina*, Hodgson, *J. A. S.* V, 779. Hilly parts of India generally, from the Himalaya southward, and also of the Malay countries: common in Arracan.

A *D. flavipes* is likewise alluded to by Mr. Swainson in his 'Classification of Birds', p. 318, citing "pt. V, No. 130," it may be presumed of Temminck's *Planches coloriées*.

6. *Tichodroma muraria*, (L.) Illiger. The Rock or Wall Creeper of Southern Europe. Common in the Himalaya, as also in Western Asia. Mr. Vigne remarks, that it "is found throughout the Alpine Punjab, displaying the delicate scarlet patch upon its grey wings, as it flits over the perpendicular banks, with the movements of a butterfly rather than of a bird." *Travels in Kashmir, &c.* II, 20.

7. *Certhia himalayana*, Vigors, *P. Z. S.* 1831, p. 174.

8. *C. discolor*, nobis. Distinguished by having the entire under-parts uniform dingy brown, or very much sullied albescent (inclining in some to whitish on the abdominal region), and no ferruginous on the flanks, but only on the lower tail-coverts; whereas in the preceding species the under-parts are pure white, tinged with ferruginous on the sides of the breast, and the flanks as well as the lower tail-coverts are deep ferruginous: the upper-parts also are a shade less rufous than in

C. himalayana, and the pale central spots to the feathers are more diffused (*i. e.* much less defined), especially those of the head. Upon a first view, it might be thought that the under-parts of *C. discolor* are merely dirty; but the colour is not to be washed out, and five specimens before me are all quite similar, while in three Nepal specimens of the other the white is alike pure, and the flanks deep ferruginous. It is indeed possible that neither of these is the true *C. himalayana*, in which case the Nepal species might be designated *C. nipalensis*, Hodgson. *C. discolor* is common at Darjeeling.

There is a *Certhia spilonota*, Franklin, *P. Z. S.* 1831, p. 121, with "tail soft and flexible (!), in which respect it differs from the type of the genus, but it agrees in all others." It therefore cannot, however, be properly classed in *Certhia*, and requires to be re-examined. Neither Mr. Jerdon nor myself have been able to identify it. "*C. supra griseo-fusco, albo maculata; capite albo graciliter striato; gula abdomineque albidis, hoc fusco fasciato; caudâ albo fuscoque fasciatâ. Longitudo 5½ unc.*" Major Franklin's specimens were collected on the Ganges between Calcutta and Benares, and in the Vindhyan hills between the latter place and Gurrah Mundelah, on the Nerbudda.

Accentor mollis, nobis. This fourth species of Himalayan *Accentor* (vide *J. A. S.* XII, 958 *et seq.*) is about six inches long, of which the tail occupies two and a half; wing three and a quarter; bill to frontal feathers five-sixteenths of an inch; and tarse three-quarters of an inch. Colouring soft and delicate. Upper parts a rich brown, passing into pure dark ash-colour on the head and neck, and into maroon on the scapularies and tertiaries, and less deeply on the hind part of the back; coverts of the secondaries pure dark grey, those of the primaries, with the winglet, black, as are also the primaries, these last having their unemarginated portion externally bordered with pale grey; tail greyish-dusky; frontal feathers to above the eyes margined with white, the lores blackish, and the entire under-parts slightly embrowned deep ash-colour, as far as the vent, which is pale and tinged with ferruginous, the under tail-coverts being deeper ferruginous, and the hind portion of the flanks dark ferruginous: bill blackish; and feet pale, having probably been tinged with yellow. From Darjeeling.

"The species of this genus," remarked Mr. Yarrell not long ago, "are very limited in number, only five, I believe, being at present known. Two are figured in this work [*'History of British Birds,'*] as belonging

to England [one of these, however, being there only known as an excessively rare straggler]; two others are found in the north and east of Europe*; and a fifth has been received from the Himalaya mountains. M. Temminck includes *A. alpinus* in his catalogue of the birds of Japan." The discovery of four Himalayan species, all different from those of Europe, is accordingly no small accession to the known species of the present group; and it is likely that the mountain ranges of Central Asia will be found to yield several more.

Locustella rubescens, nobis. Without having a specimen of the British *L. Raii* for comparison, I sufficiently well remember that bird (of which I have shot many) to be enabled to state that the present one is a true Locustelle, having merely a rather shorter tail, and the legs (I think) are somewhat stouter than in its British congener. The general characters, however, are quite the same. Length six inches, by seven and three-quarters in spread of wing; the closed wing two inches and a half; and tail two inches, its outermost feathers half an inch less; bill to gape three-quarters of an inch, and tarse seven-eighths. Irides dark hazel. Bill dusky horn, pale at base of lower mandible; and legs light brown. Colour of the back ruddy-brown, with black centres to feathers; of the crown dusky, with olivaceous lateral margins to each feather; sides of neck plain olivaceous, as are also those of the breast; throat and belly white, the front of the neck tinged with fulvescent-brown, which is likewise the hue of the flanks; lower tail-coverts fulvescent-brown, the longer of them darker with whitish tips; rump and tail dark ruddy-brown, all but the middle feathers of the latter slightly tipped with grey, with traces of barred markings of the same underneath; wings dusky, the coverts margined with olivaceous, and the large alars with ruddy-brown; tips of the tertiaries a little albescent; a narrow whitish line from bill to occiput, and slight medial dusky lines on the hindmost feathers of the flanks. A single specimen of this bird was shot in the neighbourhood of Calcutta, in the month of March. On dissection, the muscles of its legs were observed to be very thick, with stiff rigid tendons, as in the British Locustelle.

* Surely that of northern Europe here alluded to, is not the so-called *A. calliope* of M. Temminck, v. *Calliope camtschatkensis*, (Lath.)?: a bird common in Lower Bengal during the cold season, but certainly having no particular affinity for *Accentor*.

Tribura luteoventris, Hodgson. Nearly allied in form to the preceding, but the tail much more graduated (as in *Locustella Rati*), and the bill rather more compressed, with the ridge of the upper mandible more decidedly raised and acute towards its base. I suspect that it pertains to the division *Pseudoluscinia*, Bonap. Length about five inches and a half, of which the middle tail-feathers measure two and a half, the outermost being an inch shorter; wing two inches; bill to gape nine-sixteenths of an inch, the latter quite smooth (as in *Locustella*); tarse three-quarters of an inch; claws fine, and but moderately curved, the hind-claw measuring half an inch. Upper parts uniform olive-brown; the lower paler, except the flanks, which are also a little rufescent; throat and middle of the breast and belly inclining to whitish; bill dark horn-coloured above, and pale below; and legs light brown. Inhabits the Kachar region of Nepal.

Mr. Hodgson gives the following generic characters of his *Tribura*. "Bill equal to the head (measured to gape), straight, compressed, at base high as broad, with the ridge raised and keeled between the oval nares: tip of upper mandible very slightly inclined, but distinctly (though minutely) notched: rictus quite smooth. Wings short and rounded, the two first quills conspicuously and equally graduated, the three next subequal and longest. Tail somewhat elongated and graduated equally throughout, rather cuneated than fan-shaped. Tarse medial, stout [or rather, of moderate strength], smooth, longer than the middle toe and nail: toes and nails slender and simple, compressed and elongate; inner lateral with its nail exceeding the outer; the hind toe least, and not broad. Feet of terrene model,"—being much as in the British *Locustella*, which bird I have seen on the ground, among furze bushes, I think with an ambulatory gait.

Dumeticola, nobis, n. g. A specimen sent by Mr. Hodgson with the MS. name *Salicaria affinis*, would fall under M. Temminck's division of *Bec-fins aquatiques*, but would scarcely have been referred by Mr. Selby to his *Salicaria* (now dismembered, and its component species assigned to previously established divisions). Nearly allied to the last species, it departs further from the *Salicaria* model, and approaches more to that of *Prinia*, and especially of *Horeites* (hereinafter described): having comparatively full and puffy plumage, and a less cuneated tail, inasmuch as the three middle pairs of feathers graduate but slightly; the first primary is also rather shorter, and the second rather

longer, than in *Tribura* (v. *Pseudoluscinia*?) *luteoventris*. The bill is shaped somewhat as in *Cinclus*, but is proportionately shorter, with the peculiarities of that form less developed; the nareal apertures are quite basal; and the gape smooth, as in the preceding: feet also similar, but the claws slightly longer and straighter.

D. thoracica, nobis. Length five inches, of which the tail measures two inches, its outermost feathers seven-eighths of an inch less; wing two and one-sixteenth; bill to frontal feathers three-eighths of an inch, and to gape above half an inch; tarse three-quarters, and hind claw five-sixths of an inch. Upper-parts dark olive-brown, with a faint ruddy tinge on the lower part of the back; throat and above the lores white, passing into ashy on the breast, which, with the fore-neck, is marked with largish round dusky spots; lower portion and sides of the breast plain brownish-ashy, the medial portion of the belly white, and the flanks fulvescent-brown; under tail-coverts dark olive-brown, with whitish tips: bill dusky, and legs and claws pale. Inhabits Nepal.

Horornis, Hodgson, is placed by that naturalist as a subgenus of his *Tribura* (*Pseudoluscinia*? Bonap.), having "the bill feebler, and the tarse sometimes distinctly scutellated: wings and tail as in *Nivicola*" (note to p. 585).—I have a hasty note of the second species below described, (from a specimen taken to England by Mr. Hodgson,) as being "intermediate to *Prinia* and *Tesia*, having the bill slender and compressed, much as in *Locustella*, with the rictorial hairs scarcely perceptible; tail rather short, and much graduated; wings the same, the first quill but half the length of the second, the fourth and fifth equal and longest, a little exceeding the third and sixth."

H. flaviventris, Hodgson. (*Non vidi*.) "Above olive-green, below pale yellow; chin and line over eye albescent; legs fleshy; bill dusky-brown. Length four inches and three-eighths; bill half an inch; tail an inch and five-eighths; wing under two inches; tarse thirteen-sixteenths; central toe and nail eleven-sixteenths; hind nine-sixteenths. Hab. the Cachar, or *juxta*-Himalayan region of the hills."

H. fortipes, Hodgson. "Bill slender, with notch and inclination distinct; rictal hairs distinct. Tail broad, soft, fan-shaped. Legs strong, and frequently smooth. Wing as in *Tribura*, more or less pointed, and not absolutely rounded as in *Horcites*. Above olive-brown; below white: the flanks, vent, and eye-brows, yellowish. Legs and bill fleshy-white; the bill more sordid. Length four inches

and five-eighths; bill half an inch; tail under two inches; wing two and one-sixteenth; tarse above fifteen-sixteenths; central toe and nail eleven-sixteenths; hind nine-sixteenths. Hab. the Cachar." Hodgson's MSS. — The following description was taken by myself from the specimen before alluded to. Length about four inches and a quarter, of wing two inches, and tail an inch and a half, its outermost feather half an inch shorter: bill to gape five-eighths of an inch; and tarse three-quarters of an inch. Colour uniform dark olive-brown above, below pale ochraceous-brown, approaching to albescent; flanks and lower tail-coverts dark brown, the latter margined paler; bill dusky above, below paler; legs also pale.

Horeites, Hodgson. "Bill shorter than head, quite straight, usually distinctly notching; nares covered with a scale. Wing as in *Prinia*. Tarse high, as in *Prinia*, but the toes less repent, ambulant in fact, with the laterals equal and freer, and the central longer; nails slender and *Sylvian*, not *Parian* as in *Orthotomus*. Tail short [or rather, I should say, of moderate length], narrow [I should rather term it somewhat broad], rounded as in *Orthotomus*, but without the *Merops*-like elongation of the centrals." Hodgson's MSS.—According to my ideas, these birds approach a good deal to the genus *Tesia*, particularly to *T. flaviventris*; but have a more slender bill, a well developed, cuneiform, broad and soft, tail the feathers of which are much graduated, and the general character tends distinctly towards *Pseudoluscinia* and its allies. Mr. Hodgson describes two alleged species, "exclusively confined to the northern region of the hills, near the snows."

H. brunnifrons, Hodgson. "Above olive-brown, [slightly] redder on wings and tail; cap red-brown. Below sordid white [pale ashy], pure centrally. [Bill dusky above, pale beneath; and the legs pale.] Length four inches; bill half an inch; tail an inch and five-eighths; wing the same [varying from this to nearly two inches]; tarse three-quarters; central toe and nail five-eighths; hind seven-sixteenths."

H. pollicaris, Hodgson. "Above dark olive, below and the eye-brow yellowish. Legs and bill fleshy-grey. Length three inches and a half; bill seven-sixteenths; tail an inch and five-eighths; wing the same; tarse thirteen-sixteenths; central toe and nail five-eighths; hind half an inch. Has a slender, *Regulus*-like, bill, and very short, extremely rounded, wings. Its tarse is remarkably elevate, and scutellate

to the front, and its toes are compressed and ambulant, but with a remarkably large thumb for such a foot." From a specimen taken to England by Mr. Hodgson, I took the following note.—"Probably only the young of *H. brunnifrons*, from the adults of which it differs in the colour of the head being uniform with that of the back, and the under-parts less albescent and devoid of any ashy tinge, being slightly washed with yellowish. "These birds constitute a *nivicolan* or northern hill group, representing the *Priniæ* of the plains of India." Hodgson's MSS.*

Tesia, Hodgson (February, 1837): *Microura*, Gould (August, 1837). Of this curious genus, the following species may now be enumerated.

1. *T. cyaniventer*, Hodgson, *J. A. S.*, VI, 101: *Saxicola ? olivæ*, McClelland and Horsfield, *P. Z. S.*, 1839, p. 161. Bright olive-green above, slaty below. Nepal, Darjeeling, Assam.

2. *T. castaneo-coronata*, (Burton), *P. Z. S.* 1835, p. 152: *T. flaviventer*, Hodgson, 1837. Bright olive-green above, vivid yellow below, with the crown and ear-coverts a lively reddish-chesnut. Nepal.

3. *T. squamata*, (Gould), *Icones Avium*: var. A, *T. rufiventer*, Hodgson, *J. A. S.* VI, 102; Var. B, *T. albiventer*, Hodgson, *ibid.*; Var. C, *T. concolor*, Hodgson, *MS.* I believe these to be all different phases of plumage of the same species, and therefore venture upon

* The following, to judge from specimens presented to the Society by Mr. Hodgson, so far from being generically different, appears to me to be identical in species with *Horeites brunnifrons*, presenting at most but an individual diversity, such as may commonly be seen in different specimens of *Prinia inornata*, or *Cysticola cursitans*, shot out of the same little society; but I nevertheless give Mr. Hodgson's diagnosis, as follows:—

Nivicola, Hodgson, "Bill still shorter, feebler, *Regulus*-like, with the notch evanescent: wings and tail broader, firmer, ampler than in any of the above: tail fan-like. Wings not absolutely round; the fifth quill longest; the two first nearly, the next little, and both *inter se* equally, gradated. Tarse medial: toes simple, ambulant. Habitat the Caehar, near the snows.

"*N. schistilata*, H. Above olive-brown, below white, and laterally pale slaty-blue. Legs fleshy, bill pale. Cap on crown brunnescens. Coloured very like our *Horeites brunnifrons*, but decidedly different in structure, with longer wings, broader and firmer tail, and more ambulant feet, of which the central digit is long, the laterals equal and nearly free, and the hind least and compressed. Length four inches and a quarter; bill half an inch; tail two and one-sixteenth; wing one and fifteen-sixteenths; central toe and nail ten-sixteenths; hind half an inch, or less." Hodgson's MSS.

adopting the specific name bestowed by Mr. Gould, in preference to either of those given by Mr. Hodgson, as being alone applicable to the species generally. However stringently rules may be drawn up, such as the very excellent "Series of Propositions for rendering the Nomenclature of Zoology uniform and permanent," adopted as the Report of a Committee appointed by the 'British Association' for the consideration of this subject, cases will still arise, now and then, in which a naturalist must rely upon his own judgment, and indeed the present one may be brought under § 11 of the "Propositions," by which "a name may be changed when it implies a false proposition which is likely to propagate important errors." For a precedent, I cite the *Neomorpha Gouldii* of Mr. G. R. Gray, it having been ascertained that the *N. acutirostris* and *N. crassirostris* of Gould were merely the different sexes of the same bird. At the same time, I most fully concur in the remark, that "this privilege is very liable to abuse, and ought therefore to be applied only in extreme cases, and with great caution." In the present instance, it may be justly urged in favour of Mr. Gould's specific name, that the bird having been *figured* by that naturalist as *Microura squamata*, it is already better known by that denomination than by any other, and that the proposed alteration, so far from being likely to induce confusion, is, on the contrary, calculated to remove a source of error, such as would result from the exclusive adoption of either of Mr. Hodgson's appellations to the species in all its phases. I might even have hesitated in proposing an entirely new name for the bird in question; but that given by Mr. Gould has not only already obtained currency, but was besides very nearly contemporaneous with the partially applicable ones bestowed by Mr. Hodgson. Certainly, the characters and dimensions of the three alleged species correspond exactly; and it will be seen that Mr. Gould's second figure represents a specimen just midway between *T. albiventer* and *T. rufiventer*, while an example presented to the Society by Mr. Hodgson of his *T. concolor*, is of a uniform brown colour all over, with a slight ashy shade on the under parts; but retains two or three white-margined feathers on the breast resembling those of ordinary *albiventer*, with which it quite accords in all other particulars, and is decidedly of the same species. A second specimen is plain brown above, with white throat, and white margins to the feathers of the breast and belly, decreasing on those of the flanks. A

third has pale terminal specks on the feathers of the upper parts, larger and elongated on those of the head, and the white of the underparts much as in the last, but rather more developed. This variation of plumage is instructive, and a knowledge of it may prevent a multiplication of factitious species. Inhabits Nepal, and Darjeeling.

4. *T. pusilla*, Hodgson, n. s. Size and proportions of the next, but the bill rather longer, and the tail barely exceeding half an inch. In general aspect it much resembles the *rufiventer* variety of the last. Upper parts dark brown, the wing-coverts having terminal pale dots: lores and under parts of a light wood-brown, the feathers slightly margined with black; those of the flanks chiefly dark, with brown margins, and the extreme edge black, like the rest. Bill dusky above, and legs horn-brown. Inhabits Nepal.

5. *T. caudata*, nobis. Length three inches and five-eighths, of which the tail measures an inch, being considerably more developed than in the other species of analogous tone of colouring; wing an inch and three-quarters; bill to forehead seven-sixteenths, and tarse eleven-sixteenths. Upper parts dark and rich olive-brown, the feathers very slightly margined with black, and having also black shafts; throat ferruginous, paling on the breast, where the feathers have black centres and are further tipped with black; the belly similarly marked with dusky-black and white: wings uniform dark reddish-brown; and tail inclining to the same, being also very soft and flexible: lores and orbital region ash-grey: bill blackish; and legs brown. From Darjeeling.

To these may be added the *Troglodytes microurus* of Ruppell, which shews the form to be likewise African.

Mr. Hodgson proposes to restrict *Tesia* to *T. cyaniventer* and *T. flaviventer*, and applies a new name to the others, which, however, if deemed separable, would rank under *Microura* of Gould: unless, indeed, the latter be pre-occupied, in which case the name *Pnoëpyga*, Hodgson, would be admissible. The two species cited have a more developed tail; but so has my *T. caudata*, which nevertheless decidedly belongs to the *Microura* section; and Mr. Hodgson further points out that *T. cyaniventer* has the bill flatter at base, while in *T. flaviventer* the nareal scale, conspicuous in the others, is barely traceable: nevertheless, I do not see that they can be justifiably separated. According to the same naturalist, "these singular birds are solely mountaineers, dwelling in humid retired woods, where under-cover abounds. They

are solitary and silent; and they breed and nestle on the ground, and feed on insects and small seeds. Stomach a perfect gizzard.”*

Troglodytes nipalensis, Hodgson. Differs from the European Wren in its much darker colouring, in having the back a great deal more barred, the under-parts throughout distinctly barred, and more closely so than the upper-parts, and the bill somewhat shorter and a little more widened at base. Length of wing an inch and seven-eighths. Nepal.

T. punctatus, nobis. Size of the European species: the bill shorter, and vertically much deeper. Length of wing an inch and three-quarters, and of tail an inch and a quarter. Upper parts fuscous-brown, with a pale speck at the extremity of each feather, some of these specks being white or nearly so; tail barred as in the European Wren, but the feathers softer and more graduated; tertiaries comparatively broad, their ground-colour a dark mahogany, as is likewise the colour of the bars on the outer webs of the primaries. Under-parts delicately mottled, a good deal in the manner of the scapularies of a Wryneck (*Yunx torquilla*), but the pale spots much more numerous on the breast, and nearly obsolete on the belly, which last has a fulvous tinge. Bill dark horny; and the legs appear to have been pale. Inhabits Darjeeling.

Orthotomus cineraceus, nobis. This nearly approaches the *Orth. edela*, (Tem., v. *Edela ruficeps* of Lesson, and *Motacilla sepium* of Raffles, nec *Orth. sepium*, Horsf., vide *J. A. S.* XIII, 378), except that the upper-parts are pure ash-grey, without any tinge of green, whereas in *Orth. edela*, according to Raffles, the “back, wings, and tail,” are “dusky green.” The forehead and sides of the head are light ferruginous, palest on the cheeks, and there is a slight tinge of the same upon the chin; crown tinged with olive-brown; lower parts white, passing to light ashy on the sides of the breast; tail somewhat brownish, with terminal dusky band, and whitish extreme tips to its

* There is an allied (or rather, analogous,) South American form, which, I understand, is the *Leptorhynchus* of Menetries, but which name is pre-occupied; and the following species of it appears to be undescribed, in which case it may bear the specific name *subluteoventris*. Length two inches and seven-eighths; of wing one and five-eighths; tail five-eighths; bill to gape nearly five-eighths; and tarse the same, being with the toes much smaller than in *Tesia*. Upper-parts black, the feathers laterally margined with light brownish-yellow; lower-parts clear yellowish-white, whitish on the throat: a dark line from base of lower mandible; and central dark lines to the feathers of the sides of the neck, and of the fore-part of the breast. Bill dusky above, pale beneath; and legs albescent-plumbeous. Probably from Guiana.

outer feathers; tibial plumes rust-coloured, the tarsi and toes red-brown, and bill dusky above, the lower mandible pale. The middle tail-feathers are not elongated in the only specimen under examination. Length about four inches and a half, the wing an inch and thirteen-sixteenths, and tail one and five-eighths; bill to gape three-quarters of an inch, and tarse five-eighths. Common at Malacca.

Prinia, Horsfield. Of this genus, I have no species to describe additional to those noticed in Vol. XIII, p. 376, but may remark that Mr. Jerdon considers that two or three are at present confounded under *Pr. inornata*: considerable variation, however, certainly obtains in individuals shot out of the same flock; and it may be noted that this bird extends its range into Arracan. *Pr. Franklinii*, nobis, (v. *macroura*, Franklin, nec Latham), being the *Sylvia longicaudata* of Tickell, *J. A. S.* II, 576, will now bear that as its specific name: and *Pr. cursitans*, Franklin, as I am informed by Mr. Strickland, "is decidedly congeneric with the European *Cisticola schænicola*, but differs in being more rufous, &c. I have compared them," he adds, and it may be further noticed that the *cursitans* is common in Lower Bengal.*

Neornis, Hodgson. This name was applied by Mr. Hodgson to my *Culicipeta* (*J. A. S.* XII, 968), but he has since referred to it two alleged species as aberrant representatives of the form, which appear to me to have an obvious claim to typify a distinct genus, in denomination of which I propose that the above name should be retained. General form of *Prinia*, but with the bill and the colouring of *Phylloscopus*, and long hair-like rictal setæ.

N. flavolivacea, Hodgson. "Above olive-green; below and the eyebrow, luteous-yellow [dull pale yellowish]. Length five inches; bill half an inch; tail two inches and three-eighths; wing two and five-sixteenths; tarse five-sixteenths; central toe and nail five-eighths; hind nine-sixteenths." Hodgson's *MSS.* Bill dusky, base of lower mandible pale; legs brown, the tarse pale externally. Nepal.

N. cacharensis, Hodgson. "Above luteous-olive; below buff; eyebrow pale. Length four inches and three-quarters; bill nine-sixteenths; wing two inches: tarse seven-eighths; central toe and nail

* Since the above was written, I have seen three specimens of *Pr. socialis* from Agra, which, though similar in plumage, are smaller than one sent by Mr. Jerdon from S. India, and have the bill considerably smaller.—A species very closely allied to (if indeed different from) *Pr. sylvatica*, Jerdon, has also been received from Java.

five-eighths; hind half an inch." *Ibid.* N. B. I greatly suspect that this is merely the young of the preceding, from comparing a specimen sent by Mr. Hodgson of the latter, with a description I took of the former from a specimen which that naturalist took with him to England.

The *Prinia olivacea* and *Pr. icterica*, Strickland, *P. Z. S.*, June, 1844, are two species from Fernando Po, which are probably referable to this type.

Phylloscopus, Boie. This genus is greatly developed in India, and the species may be ranged into three sections.

Firstly, those immediately allied to *Ph. trochilus*, &c. of Europe, of which I have already described six, as occurring in the vicinity of Calcutta during the cold season. These are,—1. *Ph. fuscatus*, nobis, *J. A. S.* XI, 113. Of this I have now obtained several specimens, and one or two have been forwarded from Arracan,—2. *Ph. javanicus*, (? Horsf.); *Ph. magnirostris*, nobis, *J. A. S.* XII, 966. Rare in the neighbourhood of Calcutta, and occurs likewise in Arracan,—3. *Ph. lugubris*, nobis, XII, 968. Common, and also occurs in Southern India,—4. *Ph. viridanus*, nobis, XII, 967. Very common, and abundant also in the Himalaya and in Arracan,—5. *Ph. tristis*, nobis, XII, 966. Common in swampy places, wherever there is jungle; and diffused generally over India,*—6. *Ph. nitidus*, nobis, XII, 965. India generally. To these may now be added—

7. *Ph. brunneus*, nobis. Length about four inches, of wing two and three-sixteenths, and tail one and three-quarters; bill to gape exceeding half an inch, and tarse three-quarters. A plain brown species, distinguishable from *Ph. tristis* by the more cinerascens shade of its upper parts, by the absence of any yellow on the axillaries and beneath the shoulder of the wing, which is replaced by faint rufous, by the pale colour of the lower mandible and of the legs, and by the shape of its tail, of which the outermost feathers are a quarter of an inch shorter than the middle ones; lower parts brownish-albescent. From Arracan, where procured by Captain Phayre.

8. *Ph. affinis*, (Tickell), *J. A. S.* II, 576: *Sylvia indica*, Jerdon. Indian peninsula. (*Non vidi*, and the identification of these is due to Mr. Jerdon.)

* I also found this species in great abundance in a mango tope near Hooghly, where there was no marshy ground in the immediate vicinity.

There are others in the Himalaya, which I formerly considered identical with *Ph. trochilus* and *Ph. rufa* of Europe; but I had no specimens of the latter to compare them with. *Ph. trochilus* is stated by Mr. Gould to have been received from Western India, and by M. Temminck from Japan; and *Ph. sibilatrix* is enumerated in Dr. Royle's list, but the allied *Ph. nitidus* may have been mistaken for it. The species of this genus require very minute examination.

Mr. Hodgson separates those which have a pale coronal mesial line, and, in some instances only, rather a thicker bill, approaching in form to that of *Phyllopneuste*, by the same *Abrornis*. I can only regard them as forming a slight section of the genus: and the next might form an analogous third section.

Ph. schisticeps, (Hodgson). Resembles *Culicipeta Burkii* (*J. A. S.* XII, 968, v. *Muscicapa bilineata*, Lesson; v. *Cryptolopha auricapilla*, Swainson,) in colouring, except that the head and nape are uniform deep ash-grey; having the rest of the upper-parts bright yellowish-green, the entire under-parts deep yellow, and the two outer tail-feathers white on their inner web: the bill, however, is not depressed, as in the *Culicipeta*, but is thicker than usual (approaching in this respect to *Phyllopneuste*), and comparatively short: the claws also are shorter, stronger, and more hooked, than in *Culicipeta*, better adapted for clinging, as in other *Phylloscopi*. Length about four inches and a quarter, of wing two inches to two and one-eighth, and of tail an inch and five-eighths; bill to gape half an inch; and tarse five-eighths: colour of bill blackish above, yellow below; and of feet yellowish. The young have looser plumage, and all the colours less intense. Inhabits the Himalaya, and the mountainous parts of Arracan.

Of the species with pale mesial coronal streak, I have already described *Ph. reguloides*, *J. A. S.* XI, 191, and XII, 963,—and *Ph. modestus*, (Gould), *ibid.*,—both of which occur likewise in the Himalaya and in Southern India, and the latter in Arracan. To these may now be added—

Ph. pulcher, (Hodgson). Allied to *Ph. modestus*, but larger, and distinguished by having the three outer tail-feathers wholly white, with the exception of the terminal half of their outer webs, together with the tip of the inner web of the ante-penultimate, and slightly of the penultimate feathers. Colour of the upper-parts dark olive-green, with a rufous cast, and two pale rufescent bars across the wings;

beneath dingy pale green; a light streak over the eye, and trace of another upon the centre of the crown. Bill dark above, and pale beneath; the feet brown. Length about four inches and one-eighth, of which the tail measures an inch and five-eighths; wing two and three-eighths, the space between the tips of the first and second primaries three-quarters of an inch: bill to gape half an inch; and tarse nearly three-quarters. Inhabits Nepal.

Abrornis castaniceps, Hodgson. "Above vernal-green: belly, vent, and croup, deep yellow. Chin to belly white, passing laterally to soft plumbeous. Top of head chesnut, bounded by black to sides. Legs and bill pale. Length four inches; bill three-eighths; tail an inch and five-eighths; wing one and fifteen-sixteenths; tarse three-quarters; central toe and nail seven-sixteenths; hind five-sixteenths of an inch." Nepal. (*Non vidi*)

Phyllopneuste, Meyer, 1822: *Ficedula*, Koch, 1811. The latter term, though having the priority, is objectionable as conveying the idea that these birds are fruit-eaters, like the Fauvettes, which decidedly is not the case.

Ph. indicus, nobis. Nearly allied to the European *Ph. hippolais*, termed *Hippolais salicaria* by the Prince of Canino, and *Sylvia polyglotta* by Vieillot. Length about five inches and a half, or nearly so; of wing two and five-eighths to two and three-quarters, its first primary measuring three-quarters of an inch, and the second an inch and one-eighth more, and reaching to within three-eighths of an inch of the extremity of the wing; tail two inches and a quarter; bill to gape five-eighths; and tarse three-quarters of an inch. Colour dark olive-green above, a little infuscated, especially upon the crown, with a well defined dull pale yellow supercilium; breast tinged with ashy, mingled with dull pale yellowish, the rest of the under-parts dull yellowish-albescent; a slight band on the wing formed by the pale yellowish tips of some of the greater coverts: bill dusky above, and in part below, the rest yellowish, with conspicuous hair-like rictal setæ; and the legs appear to have been pale leaden. Sent from Nepal by Mr. Hodgson, and from Southern India by Mr. Jerdon.

2. *Ph. occipitalis*, Jerdon. Smaller and paler, with a light yellowish mark on the middle of the occiput, flanked on either side with blackish, and then with pale yellowish-green, continued as a superciliary streak from the bill; the first of these markings corresponding

with the termination of the coronal streaks of *Culicipeta Burkii*, of *Phylloscopus reguloides*, and of certain other species of the latter genus. Colour ashy-green, purer green on the wings and rump; a slight whitish cross-band on the wing, formed by the tips of the greater coverts; lower-parts dull albescent throughout; shoulders of the wings inferiorly, with the axillaries, yellow: bill duskyish above, pale yellow below; and legs yellowish-brown. Length four inches and three-quarters, of which the tail is an inch and seven-eighths; wing two inches and three-quarters; bill to gape five-eighths; tarse eleven-sixteenths. Southern India, where discovered by Mr. Jerdon.

3. *Ph. rama*, (Sykes), P. Z. S. 1832, p. 89. Common in Southern India.*

Calamoherpe, Boie (1822). Three species of this genus are common in Bengal, and it would seem over India generally; visiting the plains, however, only during the cold season.

1. *C. arundinacea*, (? Lin.)†: *Sylvia turdoides*, Tem.; *Agrobates brunnescens*, Jerdon. This bird requires, however, to be actually compared with European specimens. Length of a female seven inches and three-quarters, by ten and a half in expanse; wing three and five-eighths; tail three and three-eighths; bill to gape an inch and one-sixteenth; and tarse one and one-eighth.

2. *C. montana*, (Horsfield). Very common, and comes a good deal into gardens, frequenting pea-rows and the like. In wilder marshy districts, such as the swampy thickets in the vicinity of the salt-water lake near Calcutta, not one is to be met with, while both the other species abound; and the next is rarely seen in the haunts of *C. montana*. *Prinia flaviventris* and *Phylloscopus tristis* frequent the same places as *C. agricola*, but keep more to the higher jungle where there happens to be any; and I have observed no other *Phylloscopus* or *Prinia* in the localities proper to those above mentioned. *C. montana* measures five inches and three-quarters, by seven and a quarter; wing

* I have just been looking over the series of these birds with Lord Arthur Hay, and it is his lordship's opinion that *nitidus* should be referred to *Phyllopneuste*, (in which case I believe that the British *sibilatrix* should accompany it,) and that *reguloides* and *putcher* should rank in *Culicipeta*; which, I think, would certainly bring *schisticeps* into the same division. His lordship does not quite agree with me in referring *modestus* to *Phylloscopus*, but I cannot bring myself to accede to placing this last bird as a *Regulus*.

† Prof. Behn assures me, that this is certainly distinct from *Turdus arundinaceus*, Lin., of Europe; in which case it must stand as *C. brunnescens*, (Jerdon).

two inches and a quarter to two and three-eighths; tail two and a quarter: bill to gape three-quarters; and tarse seven-eighths of an inch. As compared with the British *C. salicaria*, (*Sylvia arundinacea*, apud Temminck,) the tinge of the upper-parts, breast and flanks, is much less brown, and the beak is less compressed, although vertically deeper. The next species has a nearer affinity for the British bird, both in form and colouring; but is smaller, with a distinctly smaller bill, and the supercilium is carried backward beyond the eye, which is not the case in *C. salicaria*.

3. *C. agricola*, Jerdon. Less than the preceding, with a proportionally smaller bill, and more rufous colouring. Length four inches and a half, by six and seven-eighths; wing two and a quarter; tail the same; bill to gape five-eighths; and tarse seven-eighths. A specimen procured at Cabool by the late Sir Alexander Burnes agrees perfectly with others obtained near Calcutta and in Southern India

Arundinax, nobis. This genus was first detected by Mr. Jerdon, among a number of specimens of *Calamoherpe arundinacea* (?), which the only species as yet ascertained a good deal resembles, on a superficial view. Several specimens were soon after procured by myself in the vicinity of Calcutta; and Captain Abbott also sent it from Ramree, Arracan. Its true affinity, however, is with *Sphenura* and its allies, and not with the preceding group. The bill is somewhat more produced and tapering, slenderer and less laterally compressed, than in *Sphenura*, with barely discernible emargination of the upper mandible, and the rictal bristles are smaller and more slightly curved; rest as in *Sphenura*, but the tail-feathers narrow and much graduated.

Ar. olivaceus, nobis. General aspect of *Calamoherpe arundinacea* (?), but at once distinguished by its shorter and thicker bill, and much more graduated tail-feathers. Length eight inches, of which the middle tail-feathers measure three and three-quarters, the outermost an inch less; wing three and one-eighth; and tarse an inch. Colour uniform olive-brown above, a little rufescent towards the tail; throat whitish, and the rest of the under-parts tinged with fulvous-brown; lores also pale: bill dark brown, the lower mandible pale carneous; and legs plumbeous. My impression is, that the sexes are equal in size, as are all the specimens before me,—unlike the sexes of *Sphenura* and *Megalurus*; but I have omitted to note down the fact.

Gampsorhynchus rufulus, nobis, *J. A. S.* XIII, 371. Four specimens of this curious bird are now before me, of which two are from Darjeeling, and the others from the mountains of Arracan: and it is remarkable that all of these appear to be partially affected with albinism. All four resemble in having the under-parts vivid white, with a tinge of ferruginous on the flanks; and the upper are bright olive-brown inclining to ferruginous, the tail-feathers tipped paler: all, too, have more or less white on the shoulder of the wing, though reduced to a single feather upon one wing only, of one of them, while another has about half an inch of the shoulder of each wing white, and the rest shew a greater or less admixture of white on the same part: but the crown varies most remarkably, being either pure white or bright ferruginous, or the two variously intermixed, and without either depending on age or season, as new feathers may be seen growing of both. In its affinities, this genus exhibits a very close approach to *Sphenura*, more so than I had recognised upon the examination of the first specimen only; but the more developed bill, and distinctly notched and hooked upper mandible, with the diminished curvature of the rictal bristles, which however are equally rigid, and longer and more tapering, fully authorise its separation from the form of *Sphenura striata*, though it is likely enough that species will eventually be found to connect them by intermediate links.

We have accordingly now the following Indian genera of this group:—*Sphenura*, Licht. (v. *Dasyornis*, Vig. and Horsf.);—*Gampsorhynchus*, nobis;—*Arundinax*, nobis;—*Laticilla*, nobis (olim *Eurycercus*, *J. A. S.* XIII, 374, which name cannot be retained, as it was previously applied to a genus of *Entomostraca* by Dr. W. Baird, in the *An. and Mag. Nat. Hist.*, February, 1843, p. 88);—and *Schœnicola*, nobis, XIII, 374: all these being distinct from the extra-Indian (so far as at present ascertained) *Sphenæacus*, Strickland, which again is closely allied*: so also is *Megalurus*, Horsf. (vide XIII, 372); and we

* If *le Fluteur* of Levaillant, which is the type of Mr Strickland's *Sphenæacus*, be correctly figured by Mr. Swainson (who terms it *Malurus africanus*), it would have a much thicker bill than *Sph. gramineus*, Gould, figured in the "Birds of Australia," so much so that the two could scarcely range together in the same minimum group, though in other respects they would seem to resemble very closely. The *Cinctorhamphus cruralis* of Gould, founded on the *Megalurus cruralis*, Vig. and Horsf., is a form nearly allied to true *Megalurus*, and like the latter and also *Sphenura*, the female is very much smaller than the male, this disparity being even greater than in its Indian allies. I have never had an opportunity of observing the habits of *Mega-*

have the *Malacocercus caudatus*, (Dumeril, v. *Timalia chatarrhæa*, Franklin, and *Megalurus isabellinus*, Swainson), and the *Suya criniger* of Hodgson, connecting the present group respectively with the long-tailed *Malacocerci*, and with the *Prinia*. Indeed, I hardly consider *Suya* to be separable from *Prinia*.

The genus *Malacocercus* treated of in XIII, 367 *et seq.*, has since been further developed by Mr. Jerdon, in the second No. of his 'Illustrations of Indian Ornithology'; and this naturalist now considers that the species which he formerly referred to *Somervillei* of Sykes, and which I followed him in so doing in XIII, 368, is distinct from Col. Sykes's bird; for which reason he has given it the name *malabaricus*.

The proposed genus *Orthorhinus*, nobis, J. A. S. XIII, 371, proves to have been founded on a young example of a new species of *Pomatorhinus*, and must therefore be cancelled: but the species will stand as

Pomatorhinus hypoleucos, nobis. Adults, received from Tipperah and Arracan, merely differ from the young before described in the firmer texture of their feathers, and in the elongation and curvature of the beak, as in the other species of the genus to which it is now referred: but the beak is less curved and less compressed than in the majority of the species, in which respect, as in size and colouring, *P. erythrogenys* makes the nearest approach to it. Colour above olive-brown, a little cinerascens on the head, and a rufous streak commences behind the eye and expands into a patch on the sides of the neck beyond the ear-coverts: lower-parts white, margined with ashy on the sides of the breast; and the flanks wholly ashy, with a tinge of brown: wings and tail a little rufescent, the lower tail-coverts more deeply so. Bill dusky, with more or less of its terminal portion horny-white; and the legs appear to have been greenish. Length ten to eleven inches, of wing four and a quarter, and tail four inches; bill to gape one and three-quarters; and tarse one and a half.

P. ferruginosus, nobis. This beautiful species measures about nine inches long, of which the tail is four and a quarter; wing three and a quarter; bill to forehead an inch to one and one-eighth; and tarse an inch and three-eighths. Colour greenish olive-brown above, the

lurus palustris, but am informed that it keeps much more to the reeds than seems to be the case with *Cinclorhamphus australis*, though it, in like manner, mounts singing into the air.

cap black in the male only; lores and ear-coverts also black in both sexes, extending a little along the sides of the neck; a long white supercilium, tinged with rufous on the sides of the forehead in the male; throat, towards the chin, also white, but the rest of the under-parts bright ferruginous, fading on the belly: bill deep coral-red; and legs dusky-brown. It is unusual, if not previously unexampled, for the sexes in this genus to present any marked difference of colouring. The species inhabits Darjeeling, and the mountains of Arracan.

Here, then, are two more species of *Pomatorhinus*, to be added to the ten (or eleven) enumerated in *J. A. S.* XIII, 946. I may remark, also, that specimens of *P. schisticeps* from Tipperah and Arracan have the rufous sides considerably brighter than any I have seen from the Himalaya, though this difference may, after all, be merely sexual; and that there seem to be two marked varieties of *P. erythrogenys*, one having white under-parts with merely faint traces of darker spots, the other with the throat and breast densely mottled with greenish-olive, much as in the darker specimens of *P. ruficollis*, though the latter species has always a white throat.

Genus *Garrulax*, Lesson. A more satisfactory reduction of the described species of this extensive genus may now be offered, than that given in Vol. XII, 948; but as there is no occasion for repeating here the synonymes which are there brought together, I shall merely put the word *ante* as a reference to them.

1. *G. Belangeri*, Lesson, *ante*. Tenasserim and Pegu.
2. *G. leucolophos*, (Gm.): probably *Ianthocinclu leucocephala*, Gould, mentioned in *P. Z. S.* 1844, p. 92. Himalaya, Assam, Sylhet, and Arracan.
3. *G. perspicillatus*, (Gmelin), *ante*. China. (*Non vidi.*)
4. *G. chinensis*, (Scopoli): *G. auritus*, &c., *ante*. China.
5. *G. albogularis*, (Gould), *ante*. Himalaya.
6. *G. gularis*, (McClelland). Assam. (*Non vidi.*)
7. *G. Delesserti*, (Jerdon), *ante*. Neilgheries.
8. *G. pectoralis*, (Gould): var. *G. melanotis*, nobis, *ante*. Himalaya, Arracan. In the latter province, black-eared and silvery-eared individuals occur commonly in the same flock, with every intermediate grade; but I have only seen the silvery-eared variety from the Himalaya.
9. *G. moniliger*, (Hodgson). Himalaya, Tipperah, Arracan.
10. *G. McClellandii*, nobis, *ante*. Assam. (*Non vidi.*)

11. *G. cœrulatus*, (Hodgson). Himalaya : not rare at Darjeeling.
12. *G. ruficollis*, (Jardine and Selby): *G. lunaris*, (McClelland),
ante. Darjeeling, Assam, Sylhet.
13. *G. rufifrons*, (Swainson), *Menag.* p. 290 : *G. rubrifrons*, Les-
son. Java. (*Non vidi.*)
14. *G. ocellatus*, (Vigors). Himalaya.
15. *G. rufogularis*, (Gould), *ante*. Himalaya, Sylhet..
16. *G. squamatus*, (Gould), *ante*. Himalaya.
17. *G. subunicolor*, (Hodgson). Young, described in *J. A. S.* XII,
note to p. 952, and again in *An. and Mag. N. H.*, May, 1845, p.
326. The adults are as follow:—Length ten inches, of which the tail
measures four and a half, its outermost feathers an inch and a half less ;
of wing three inches and a half ; bill to forehead five-eighths, and to
gape seven-eighths ; tarse an inch and three-eighths. Upper parts as
in *G. squamatus*, but slightly greener, the feathers of the crown dashed
with dusky-cinereous, and but very slightly margined darker ; lores
blackish ; the ear-coverts and feathers immediately below them a little
margined with silvery-ash : under-parts nearly resembling those above,
but the breast and belly paler, with the dark margins to the feathers
less intense : outer primaries and the emarginated portion of the rest
narrowly edged with pale ash, the rest broadly with bright yellow, as in
G. chrysopterus and some others : tail aureous olive-green where seen
above, the remainder of the feathers blackish with narrow white tips :
bill dusky, and legs brown. Common at Darjeeling.
18. *G. affinis*, (Hodgson). Himalaya.
19. *G. chrysopterus*, (Gould). Himalaya.
20. *G. erythrocephalus*, (Vigors). Himalaya.
21. *G. variegatus*, (Vigors). Himalaya.
22. *G. phœniceus*, (Gould), *ante* : probably *erythropterus*, Hodgson,
mentioned in XII, 954, note. Himalaya.
23. *G. cachinnans*, (Jerdon), *ante*. Neilgherries.
24. *G. lineatus*, (Vigors) : *Cinclosoma setiferum*, Hodgson ; proba-
bly *C. striatum* of Royle's list. Himalaya.
25. *G. imbricatus*, nobis. Bootan.

Of the above list, twenty of the species are illustrated by mostly very fine specimens in the Society's museum : the desiderata are the Neilgherry *G. Delesserti*, the Assamese *G. gularis* and *G. McClel-*

landii, the Javanese *G. rufifrons*, and the Chinese *G. perspicillatus*, which last Mr. G. R. Gray identifies with *G. Belangeri*, though I suspect erroneously. In my former synopsis, are included also a *G. Reinwardii* and *G. capistratus*; but the former has proved to inhabit Senegal (vide Swainson's 'Birds of W. Africa', I, 276, *Nat. Libr.*), and the form of this species, which is the type of *Crateropus*, Sw., would appear intermediate to *Garrulax* v. *Ianthocincla*, and *Malacocercus*, Sw., so that *Ianthocincla* appears to have been erroneously identified by Mr. Swainson with his *Crateropus*, and the two groups are recognised separately by Mr. G. R. Gray;—and the latter species, or *G. capistratus* (*Cinclosoma capistratum* of Vigors,) proves also to be the *Sibia nigriceps* of Hodgson, the *Hypsipetes gracilis* of McClelland and Horsfield, and it is in all probability the *Cinclosoma melanocephalum* of Royle's list; wherefore it will now range as *Sibia capistrata*, (Vigors).

It may here be added, also, that *Leiocincla plumosa*, nobis, *J. A. S.* XII, 953, is the *Actinodura Egertonii* of Gould; and that *Cinclosoma ? nipalense*, Hodgson, v. *Sibia nipalensis*, H., though allied to *Actinodura*, will not range therein (as has been suggested), but remain as the type of *Ixops*, Hodgson (XII, 958), connecting *Actinodura* with *Sibia*. Accordingly, the four supposed species of the latter genus enumerated in XII, 958, are now reduced to two, from the ejection of the first, and identification of the second and fourth; nor are the two species that remain very closely allied to each other.

The following is a *Crateropodine* genus, allied to *Pellornium*, and bearing some vague resemblance to the *Malacopteron* group.

Malacocincla, nobis. Bill as long as the head, rather stout, high, much compressed, the tip of the upper mandible pretty strongly hooked, but indistinctly emarginated, and its ridge obtusely angulated towards the base, the remainder scarcely angulated; gape but little widened, and feebly bristled; nostrils large and subovate, with oval aperture to the front, a little removed from the base of the bill: tarse of mean length and strength, as long as the middle toe with its claw; the claws suited for perching, compressed, and moderately curved, that of the hind toe rather large. Wings moderate, with the first primary reaching to about their middle, the second much shorter than the third, and the fourth longest: tail rather short, weak, and even, except that its outermost feathers are a little shorter than the rest.

Plumage full and lax, the coronal feathers somewhat elongated and of a spatulate form.

M. Abbotti, nobis. Length about six inches, or a trifle more; of wing three inches; and tail two and one-eighth: bill to gape not quite an inch, and tarse the same. Colour plain olive-brown above, tinged with rufous on the rump and tail, the upper tail-coverts ferruginous-brown: under-parts paler, the throat and middle of the belly white, the ear-coverts, sides of the breast, and flanks, rufescent, and the lower tail-coverts weak ferruginous. Bill chiefly pale horn coloured; and legs light brown. Discovered by our industrious contributor, Capt. Abbott, in the island of Ramree, Arracan; and since sent by Capt. Phayre from other parts of the same province.

Alcippe Phayrei, nobis. This genus is defined, and four species of it described and others indicated, in *J. A. S.* XIII, 384. The present one is most allied to *A. poiocephala*, (Jerdon,) and also to *Siva nipalensis*, Hodgson, of the *Leiotrichane* series: but is distinguished by its much less rufescent hue, especially on the tail and its upper and lower coverts, which are devoid of such a tinge, or the upper tail-coverts retain it only in a very slight degree. Length about five inches and a half, of wing two and three-quarters, and tail two and a half; bill to gape under three-quarters; and tarse seven-eighths of an inch. Upper-parts slightly fulvescent olive-brown, the crown ashy, and wings, particularly the large alars, margined with somewhat deeper fulvescent; lower-parts fulvescent-whitish, whitest on the throat and middle of the belly: bill dusky above, below pale; and legs light-coloured: outermost tail-feather five-sixteenths of an inch shorter than the middle ones. Inhabits Arracan, where discovered by Capt. Phayre.

In naming the two preceding species, I have merely rendered homage due to two gentlemen who have made great efforts to investigate the Natural History of the districts which have been placed under their administration. It is a kind of honour which is in the power of the naturalist to award; but it has been so much and so egregiously abused, that the distinction is no longer a very marked one, such as originally it was intended to be. The evil, however, it is to be hoped, is now working its own cure: and there is reason to believe that naturalists in general begin to feel the impropriety of underrating their

privilege of perpetuating the remembrance of the benefactors of their science, and especially of those who have contributed largely to the stock of materials from which information is derived;—a privilege which assuredly should be exercised charily, and with due judgment and discrimination; such as would really render it an honorable and coveted distinction, and be understood to serve for a lasting memorial and acknowledgment of services that had been done for science.

Iora, Horsfield. In *J. A. S.* XIII, 380-1, I indicated three described species of this genus, which had been erroneously considered identical; but at the time of writing that notice, I was acquainted only with the female of *I. scapularis*, which alone is figured and described by Dr. Horsfield. Both this and *I. typhia* are common in the vicinity of the Straits of Malacca—the male *I. scapularis* having the throat and fore-neck dark green, uniform with the upper parts, and no yellow except on the orbital feathers. According to Mr. Strickland, Dr. Horsfield has lately obtained a new *Iora* equal in size to the small *Oriolus xanthonotus*; and Mr. Strickland regards this approximation of size as tending to corroborate his opinion that the genus *Iora* is allied to *Oriolus*,—an opinion to which, however, with all deference, I do not feel disposed to accede. To the synonymes of *I. zeylonica* (which specific name was based on the *Ceylon Blackcap* of Brown's Illustrations,) must be added *Muscicapa melanicter*a, Gm., founded on Brown's *Yellow-breasted Flycatcher*, also from Ceylon.

Chrysomma, Hodgson: founded upon *Timalia hypoleuca*, Franklin, v. *T. Horsfieldi*, Jardine and Selby. With reference to Mr. Frith's statement (*J. A. S.* XIII, 360,) of there being a second species of this form in Bengal, differing from the common one in being about half larger, I may remark that *Chr. hypoleucos* is subject to some variation of size, and especially of depth of colouring, more particularly upon the crown; some having this part dusky-vinaceous, with a tinge of the same on the rest of the upper parts, while others have the whole upper parts paler, and of an uniform rufescent-brown, brightest on the wings: the latter, however, appear to be younger birds, and certainly are not different in species from the dark-headed ones. *Chr. hypoleucos* appears to be very generally diffused throughout India.

August, 29th 1845.

(To be continued.)

Original Character	Alphabetic Character	Alphabetic Character	Alphabetic Character	Alphabetic Character	Equivalent in the Spanish Alphabet
Ɑ	Ɑ	Ɑ	Ɑ	Ɑ	a
Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	e, i
Ɐ	Ɐ	Ɐ	Ɐ	Ɐ	o, u
Ɒ	Ɒ	Ɒ	Ɒ	Ɒ	b
ⱱ	ⱱ	ⱱ	ⱱ	ⱱ	k
Ⱳ	Ⱳ	Ⱳ	Ⱳ	Ⱳ	d
ⱳ	ⱳ	ⱳ	ⱳ	ⱳ	d, r
ⱴ	ⱴ	ⱴ	ⱴ	ⱴ	g
Ⱶ	Ⱶ	Ⱶ	Ⱶ	Ⱶ	j, h
ⱶ	ⱶ	ⱶ	ⱶ	ⱶ	y
ⱷ	ⱷ	ⱷ	ⱷ	ⱷ	l
ⱸ	ⱸ	ⱸ	ⱸ	ⱸ	m
ⱹ	ⱹ	ⱹ	ⱹ	ⱹ	n
ⱺ	ⱺ	ⱺ	ⱺ	ⱺ	l, r
ⱻ	ⱻ	ⱻ	ⱻ	ⱻ	p, f
ⱼ	ⱼ	ⱼ	ⱼ	ⱼ	s
ⱽ	ⱽ	ⱽ	ⱽ	ⱽ	t
Ȿ	Ȿ	Ȿ	Ȿ	Ȿ	u, v
Ɀ	Ɀ	Ɀ	Ɀ	Ɀ	ng

Fig. 2

ⱭⱮⱯⱰⱱⱲⱳⱴⱵⱶⱷⱸⱹⱺⱻⱼⱽⱾⱿ

ⱭⱮⱯⱰⱱⱲⱳⱴⱵⱶⱷⱸⱹⱺⱻⱼⱽⱾⱿ

ⱭⱮⱯⱰⱱⱲⱳⱴⱵⱶⱷⱸⱹⱺⱻⱼⱽⱾⱿ

ⱭⱮⱯⱰⱱⱲⱳⱴⱵⱶⱷⱸⱹⱺⱻⱼⱽⱾⱿ

ⱭⱮⱯⱰⱱⱲⱳⱴⱵⱶⱷⱸⱹⱺⱻⱼⱽⱾⱿ

Fig. 3

ⱭⱮⱯⱰⱱⱲⱳⱴⱵⱶⱷⱸⱹⱺⱻⱼⱽⱾⱿ

ⱭⱮⱯⱰⱱⱲⱳⱴⱵⱶⱷⱸⱹⱺⱻⱼⱽⱾⱿ

ⱭⱮⱯⱰⱱⱲⱳⱴⱵⱶⱷⱸⱹⱺⱻⱼⱽⱾⱿ

ⱭⱮⱯⱰⱱⱲⱳⱴⱵⱶⱷⱸⱹⱺⱻⱼⱽⱾⱿ

Fig. 4

ⱭⱮⱯⱰⱱⱲⱳⱴⱵⱶⱷⱸⱹⱺⱻⱼⱽⱾⱿ

Fig. 4

A consonant with a dot above it ends in
 (English w) thus ⱽ̇ is read be (English
 be). If the dot is below it ends in o. Thus ⱽ̇̇ is
 read bo. This sign at the end of a word (1)
 signifies n, m, l &c.



A notice of the Alphabets of the PHILIPPINE ISLANDS. Translated from the "INFORME SOBRE EL ESTADO DE LAS ISLAS FILIPINAS," of DON SINIBALDO DE MAS, Madrid January 1843. Vol. I. p. 25. By HENRY PIDDINGTON, Sub-Secretary Asiatic Society, &c. &c. With a plate.

The Indians were not strangers to the art of reading and writing. I give (fig. 1. of the annexed plate) some Alphabets of different provinces which I have procured. It will be seen, at once, that they have all a common origin, or rather that they are one and the same. The little communication amongst these people for many years or ages, introduced alterations in their caligraphy as in their language, which was also probably at first but one stock.

Father Juan Francisco de San Antonio says, that they write like the Chinese, in perpendicular lines, and this error was copied by Father Martinez Zuniga, M. Le Gentil and others, who have written on the Philippines. Nevertheless, by documents which I have had in my possession, particularly from the archives of the convent of St. Augustin, in Manilla, I have ascertained that it is read from left to right, like our own. In fig. 2, is represented a fragment of a transfer of landed property, written in Bulacan in 1652, on Chinese writing paper :

And in fig. 3, two signatures with their equivalent renderings of the names, in our characters. To this same family of written characters would appear to belong (fig. 4) an inscription cut on a plank, which was found in 1837, by a detachment of Troops, in the mountains inhabited by the savage tribes called Igorrotes.

But withal, no books nor any kind of literature in this character are to be met with, except a few amatory verses written in a highly hyperbolic style, and hardly intelligible. It would appear, that their letters partook of this oriental redundancy.

Register of Indian and Asiatic Earthquakes for the year 1843. By Lieutenant R. BAIRD SMITH, F.G.S., Bengal Engineers.

1. *Earthquake of the 2nd January, 1843.*—This shock was experienced at Manilla, at a quarter-past one on the morning of the 2nd January. It consisted of two distinct vibrations with a very short interval between them, the first having a duration just perceptible, the second lasting nine seconds. I include in this Register all shocks in localities connected with the great Volcanic band of the Moluccas, because the northern extremity of this band is found in our own Territories, and the whole becomes thus connected with India Proper. The shock under notice appears to have been slight, but it was the forerunner of a series, one of which was of great violence.

2. *Earthquake of the 4th January, 1843.*—This earthquake occurred at Singapore, about midnight of the 4th, and on the same date and about the same hour two shocks were experienced at Malacca. My information relative to these shocks is very limited, being confined to a notice of their occurrence.

3. *Earthquake of the 6th January, 1843.*—The greatest force of the shock of the 6th January, so far as our information extends, was felt at Pulo Nias, in the vicinity of Java and Sumatra. For the following extract from the "Singapore Free Press," detailing the effects of the earthquake, I am indebted to H. Cope, Esq.

Singapore. Below will be found an account of an earthquake at Pulo Nias, translated from the "Java Courant," which we have received from our correspondent. It will be observed, that this earthquake occurred about the same time with the shocks which were experienced in Manilla, Singapore and Penang; but that it was of a much more violent nature, and attended with disastrous circumstances, which were happily unknown in other instances. In this case the phenomenon partook of all those fatal and violent effects which have usually been the accompaniments of similar convulsions of the earth in Java and Sumatra.

Account of an Earthquake at Pulo Nias.

(Translation from the Java Courant, April 5th, 1843.)

Ignorant of the dismal scenes on which it would rise next morning, the sun set peaceably behind the Goenong (*mountain*) Sie Foli, (Island of Nias) on the evening of the 5th of January last.

At 6 P.M. the Thermometer (Fahrenheit) marked 83°, the sky was clear, the sea calm, the air pleasant and mild, only a breeze from the Westward (a circumstance of rare occurrence in these parts) was felt.

The inhabitants of Nias, not aware of the fate that awaited them, were enjoying the repose of sleep, when at or about midnight they were roused by heavy shocks of the earth, which at first were felt in a slight degree from the wind shifting to the Northward, but became every moment more violent; so that no fixed direction could be given to them, the shocks subsiding into a complete trembling of the earth, so that at every instant it was expected the whole Island would disappear.

The shocks continued without intermission during nine minutes, the ground was moved up and down, like the rocking of a swing; to stand up or to walk was alike impossible; houses were destroyed, burying beneath their ruins the ill-fated inhabitants.

A portion of the Mount Horiffa, close to Goenong Sie Foli, together with the fortifications of the Benting and the other Government buildings, with the exception of the harracks and Commandant's house, were totally destroyed; Coco and other large trees which for upwards of a century had withstood the hand of Time, were torn up by the roots, and the ground divided itself, shewing deep yawning chasms from which trickled a blackish frothy liquid.

No subterraneous noises were heard, being probably drowned by the dreadful din of falling mountains, houses and trees, joined to the thrilling shouts of the population.

About nine minutes passed in the fear of immediate destruction, the inhabitants began gradually to recover from the trance in which they lay plunged by this sudden calamity, people appearing from beneath the ruins of a house, or from an abyss into which they had been plunged; the one to save an aged mother, the other his helpless child.

The dreadful scene was lit up by the most beautiful sky and sparkling stars. Not long the unfortunate Islanders were permitted to exult in the hope of their miraculous escape. Again, the earth began to tremble, and repeated shocks were felt with new force. Suddenly a tremendous wave rose from the South-East, and with awful noise, spreading itself over that part of the Coast, bore every thing before it, sweeping away men, women, cattle, houses, and even whole villages;

so that in a single moment, the same spot where cattle were grazing, had become the abode of fishes.

The large Campong Mego, about one Dutch mile, South of Goenong Sie Foli, was entirely washed away by the wave; and many days afterwards the dead bodies of the victims of this woeful destruction might be seen on the beach.

The same wave penetrated into the neighbourhood of Goenong Sie Foli with such violence, that the prows lying in the river were thrown upon the shore, 100 or 160 paces from their anchorage; among the number was the Government Cruising Schooner, No. 23. The new Bazar, consisting of wooden houses, and situated on the left side of the river, was also entirely washed away. The inhabitants who escaped fled to the Benting, 60 or 100 feet above the sea, to implore the succour of others as miserable as themselves.

This phenomenon continued until half-past four in the morning, the shock being felt at intervals of two minutes, when another earthquake was experienced, which was more violent than the first one, and continued for about six minutes. The shock generally came from the West, going to the North, changing however directly to the South. The trembling of the ground, although more slightly, was felt for several days afterwards.

The authorities here have immediately caused the necessary measures to be taken, and despatched a Government vessel to give assistance to the unfortunate inhabitants of the island of Nias.—D. F. S.

Padang, 23rd March, 1843.

Pulo Nias, the seat of the catastrophe just detailed, is a small island off the West Coast of Sumatra, in about 2° N. Lat. and 98° E. Long. The intensity of the Earthquake, however great in Pulo Nias, would appear to have diminished much at a short distance from it, since no notice of its effects on the adjoining coast of Sumatra is given, and from the silence of the writer of the above account, we are led to infer that the shock if felt at all at Padang, was there very slight.

Pursuing a North Easterly direction, this same Earthquake was experienced at Singapore and Penang. The following extract from the "Penang Gazette," details the effects of the shock at these two places.

“ We noticed in our paper of the 7th instant, that a shock of an Earthquake had been experienced here about half-past 12 on the morning of the 6th, and we observe from the “Singapore Free Press” of the 12th, that a shock had been felt there precisely at the same time. In both places it was very slight, but here more generally, and on the hill at least, more severely felt than at Singapore. It is rather remarkable that on the 8th, when we had a repetition of the Earthquake about 2½ P. M. the shocks on that occasion were also more distinctly felt on the hills than in the valley. The oscillations were in both places of very short duration, and in Penang, as far as we can learn, the direction was from South to North or the contrary, but at Singapore it is stated to have been from East to West. For some time preceding this subterraneous commotion, the weather at Singapore had been unusually dry and hot for the season, the atmosphere clear, and the wind from the North East, and nothing indicated a change, until half an hour before the shock, when the heavens became ‘ quite black and chilly.’ Here also it was preceded by the same kind of weather, which however is usual with us at this season, but no sudden change or phenomenon of any kind was noticed immediately to precede the shock, excepting that, as we have learned, the rats in a house in town were heard to be particularly noisy and riotous about the roof. In both places, however, a marked change followed the convulsion. At Singapore, at 7 A. M. the following morning, heavy rains set in, and continued unremittingly for eleven days; and in Penang we experienced for several successive days sudden gusts of wind interrupted by calms, and in the evening squalls from the N. and N. E. with heavy clouds, rain and thunder in these directions, no rain however fell upon the Island, excepting a short partial shower on the 15th, and the weather has again resumed its dryness and clearness. At this time not a blade of grass is to be seen, and vegetation of every description is suffering excepting where water is applied.

“ Shocks of Earthquakes have on several occasions been felt at Penang; within the last ten years we have had four different shocks, and with the exception of the last, they have always happened during the latter months of the year. The first took place in November 1833, the second in August 1835, the third in September 1837, and the fourth on the 6th instant, as above stated. It appears therefore that here they occur periodically, and that the last interval has been more than double

the usual length. Of these, the shock in September 1837, was, by all accounts, the most severe, and the oscillations, as in the present case, are said to have come from South to North, and to have lasted full a minute and a half. It is said that on that occasion, several herds of cattle in the neighbourhood were observed running in the utmost confusion in all directions, that lamp and picture-frames oscillated, that the Roman Catholic Church bell rang of its own accord, that quantities of large shot piled up in the Fort were thrown down and scattered about, that a stone wall of a substantial building in town was rent, and the whole inhabitants were thrown into a state of consternation. The shipping in the harbour did not experience this shock, nor did the sea appear agitated; five days subsequently however another smart shock was felt, and was followed by a very heavy squall from the N. W. and great agitation and rise of the sea in the harbour. The tide overflowed the Northern beach, and flooded the compounds and lower rooms of the houses in the neighbourhood. The convulsion was experienced at the same time at Achen and along the Pedier Coast, and it is said that these places sustained considerable damage. By the late shock a clock in town was stopped, and some felt a dizziness in the head and a sensation like sea-sickness, but we have not heard of any other phenomenon attending this Earthquake. It may be that neither this shock nor any of the previous ones we have noticed are to be supposed the effects of convulsions taking place immediately below us, but to have been transmitted from some neighbouring region within the range of Earthquakes, such as Sumatra. The recent one may be described as having been a mere tremor of the ground, more than a shock."—*Penang Gazette*, 28th January, 1843.

From the facts now detailed, it appears, that the point of greatest intensity of the shock of the 6th January 1843, was in the immediate vicinity of, if not directly beneath, the island of Pulo Nias. The south coast of the island suffered most, since it was upon it that the destructive wave first broke. The facts stated are not sufficient to warrant any conclusion as to the cause of this great wave; it may have arisen from violent volcanic action in the adjoining bed of the sea, or it may have been the reflux of a wave generated by the sudden upheavement of the coast of the island itself. In both cases it is probable, the sea would first have receded from, and then returned in force upon the coast, and in the latter part of the upheavement would have remained, but no

indication of any such phenomena are given, and the point must remain an undecided one.

The general direction of the shock was from South-West to North-East; from the relative geographical positions of Pulo Nias and Singapore, the direction in the latter island would be from West to East, just the contrary to that specified in the extract above given; in Penang, on the other hand, the course would be from South to North, as correctly stated by the writer in the "Penang Gazette."

Indications of atmospheric disturbance accompanied the shock at Singapore and Penang, and most probably at Pulo Nias also, although it is not so stated in the published notices. At Singapore, nearer to the focus of the shock, these disturbances were greater than at Penang, and it is a fact to be noted, that at the former place, very heavy rain immediately followed the convulsion.

4. *Earthquake of the 8th January, 1843.*—This shock, which was very slight, was experienced at Penang, about midnight of the 8th January. It was not accompanied by any phenomena requiring special record, and was the last of the series which in the early part of the month of January were experienced throughout the Eastern islands.

5. *Earthquake of the 8th February, 1843.*—This shock was experienced at Ahmedabad in Goojerat, at 2 A.M. on the 8th February. The direction was from N. E. to S. W., and four distinct vibrations of the earth were observed, the entire duration being about eight minutes. Before the shocks were felt, there was a great rumbling noise as if carts or carriages were passing by.

These shocks were evidently of slight intensity and limited range, there being no notices of their having been experienced elsewhere than in the neighbourhood of Ahmedabad. So far as inference may be made from their direction, they would seem to have emanated from the tract of the Vindayas.

The early part of the month of February 1843, was remarkable for other indications of volcanic activity. On the 6th, one of the small volcanic hills on the Arracan coast, near to the station of Kyook Phyoo, exhibited a sudden eruption; some particulars of which are given in the following extract from a letter to the address of H. Piddington, Esq., kindly forwarded to me by that gentleman.

“ *Kyouk Phyoo, 7th February, 1843.*”

“ We however had last night a most magnificent volcanic eruption. The mountain, which is of moderate height and shaped somewhat like a pyramid, is about three or four miles from the station, which was rendered as light as noonday, although it was midnight at the time. The eruption commenced at about 11 P.M., unaccompanied by any rumbling, but throwing up masses and particles of lava to an immense height, and presenting a most magnificent spectacle, visible all round the country. The weather had been for some evenings previous, close and threatening, although the glass kept up, varying from 30-12 to 29-98 for the last five or six days. The fires gradually went out, and all was still again by about half an hour after midnight. This eruption takes place from what I hear, generally once in two years, sometimes annually.”

6. *Earthquake of the 1st April, 1843.*—The Earthquake of the 1st April 1843, was experienced in the Deccan ; I shall trace its course so far as the materials available permit, from North to South.

The most northerly point at which the shock was experienced was Sholapore ; (Lat. 17°40' North and Long. 76° 3' East) the effects of the Earthquake at this place are detailed in the following extract from the “ *Bombay Times.*”

“ The following extract from a letter, dated Sholapore, 1st April 1843, gives an account of an Earthquake which seems to have visited the Deccan.

“ I was suddenly awakened this morning about half-past 4, by a loud rumbling noise very like thunder, only more continuous and monotonous ; and while speculating on what the possible cause could be, my bed began to shake in a very unequivocal manner, so as to leave no doubt of an Earthquake ; the noise apparently came from the South or South-West, preceding the shock and lasting about two minutes, and the shock, which though slightly felt in a tent, was more severely apparent in houses, and continued, I should think, about two seconds, perhaps hardly so much. I hear however, that in the town at the foot of the hill of Sholapore, the shock was much more severe, that the ground rocked considerably, and plaster fell from the roofs and walls of the houses causing infinite alarm to the people, such an event never having occurred here before within the memory of any one. One of my Tappal (post) runners informs me, that the noise and shock met him about six miles

North-East of this, and that the ground rocked so much that he ran to a date tree for support; but this moving also, he threw himself on the ground, and did not venture to move till all was over. I suppose the course of the Earthquake therefore to have been nearly South-West and North-East; and if you hear more of its beginning and ending, this may serve to give you some idea of its course; of the breadth of its influence I have of course no idea. All yesterday was remarkably sultry and oppressive, nor was there a breath of air all night, a very unusual thing here. What between the earthquake and comet, the people here are much perplexed, and wise Brahmins are prophesying wars, tumults, and famines, to the terror of the lieges.

“An old gentleman who has just called, informs me, there was an Earthquake here, the year Tippoo was disposed of! I have no means of ascertaining the truth of this; but is this country in the track of any volcanic current or influence? Certainly Earthquakes are not common occurrences.”

The next place from which we have a notice of the shock, is Mucktul (Lat. $16^{\circ} 43'$ N. Long. $77^{\circ} 35'$ East). This notice is contained in the following extract from the “*Madras Spectator*” of the 26th April, 1843.

“A correspondent at Mucktul has favoured us with the following notice of the shock of an Earthquake felt there, as at Bellary and Sholapore on the 1st of this month. We apprehended with our correspondent, that the maximum intensity of the shock passed through Bellary in a line parallel to the direction of the Western Ghauts, its violence subsiding further Eastward, as at Mucktul.

“The Earthquake was felt here very distinctly on the morning of the 1st about a quarter to 5 o'clock. The undulating motion was not sufficiently perceptible to enable one to judge of the direction of the shock; here was merely a slight tremulous motion accompanied by a rumbling noise similar to that of a carriage passing a drawbridge. I suspect from your remark in your paper of the 12th instant, that its maximum point of intensity was at Bellary, or between this and Bellary. At Singsoorgoor and Shorapore, both places nearer Bellary than this is, it was felt much stronger than here; but at Hydrabad, about one hundred miles from this station, I suspect there was no shock, otherwise I should have heard; Bellary is also about one hundred miles from Mucktul. The morning of the 1st was here also excessively hot and close.”

Our next notice of the shock is from Bellary (Lat. $15^{\circ} 5' N.$ Long. $76^{\circ} 59' East$), where the following phenomena were observed, and are detailed in the "Madras Spectator:"—"We are indebted to a friend at Bellary for notice of the shock of an Earthquake which was felt there on the 1st instant, at about a quarter before 5. That morning a rumbling noise was heard described as resembling the well known sound (to railway travellers) of blowing off the steam from the engine. The sound increased in loudness to that of a moderate peal of thunder, and with it an undulating motion was felt, which increased in intensity till the whole cantonment shook. 'My bed,' says the writer, 'trembled till I felt almost giddy; the sound then decreased, and with it the agitation subsided.' The direction of the shock appeared to be from South-East to North-West, the atmosphere seems to have sympathised with this subterranean disturbance, the previous night having been a very stormy one, and at 4 on Saturday morning it suddenly became oppressively hot and still."

I am indebted to H. Piddington, Esq. for the following interesting notice by Captain Newbold, Madras Army, of the effects of the shock of the 1st April 1843, at Kurnool. This notice ought to have preceded that from Bellary, but it was accidentally omitted.

"Kurnool, 23rd February, 1844.

"Observing from the pages of your Journal that some researches are being instituted into the phenomena of Earthquakes, the following extract from my memoranda of an Earthquake that was felt here last year, may add to the recorded data on this head.

"Kurnool, Long. $78^{\circ} 7' Lat. N. 15^{\circ} 50'$: approximate height above the sea 900 feet. April 1st 1843, about 5 A.M. awakened by the shock of an Earthquake, accompanied by a subterranean noise like that of the rumble of Artillery at a distance. It lasted only some seconds; the noise appeared to come from the North-East, and died away to the S. W. It appears to have been felt at Bellary, which is about seventy-three miles direct distance W. S. W. from Kurnool, about the same time. There was nothing particular in the state of the weather. The comet which I first observed here on the 4th of the preceding month, was then visible, and its advent had been accompanied by a sudden and unusual rise of the Tumbuddra, which had swept off the numerous native gardens in its bed, a catastrophe which both the Affghans and Hindoos of this

place concurred in attributing to the inauspicious influence of the 'Tailed Star.'

"Some of the older natives of this part of India assure me, that Earthquakes usually happen in the hot season. East of this in the Jemaconda district, separated from Kurnool by a high chain of the Eastern Ghauts, slight shocks of Earthquakes are more frequent than in other parts of South India. This district is situated on the plutonic, hypogenic, and basaltic rocks which form a platform between the trap of the Deccan—the largest known continuous sheet of ancient lava in the world—and the great active volcanic band that runs Southerly down the Bay of Bengal, crosses the Equator by Sumatra into the Eastern Archipelago, thence Easterly embracing Flores, Java, and Timor, and the whole chain of the islands to New Guinea: whence the main trunk proceeds Northerly by the Moluccas and Philippine Islands, terminating to the North in the Peninsula of Alaska, in about the 59th degree of longitude.

"Kurnool is situate about 76 miles in a direct line W. by S. from Jemaconda, on the great line of drainage of this part of India, at the confluence of the Tumbuddra and the Hendri, on the limestone associated with the diamond sandstone, which here overlies the plutonic rocks previously alluded to; the latter constitute the base of the whole of Southern India, and are seen outcropping immediately in the vicinity of Kurnool.

"The most Southerly point to which the shock under notice would appear to have reached, is Hurryhur, Lat. $14^{\circ} 30'$ N. Long. $75^{\circ} 59'$ East. The following is the account of the shock as felt at that place. April 2nd. A slight shock of an Earthquake was felt here a little after 4 o'clock yesterday morning, attended by a dull noise, as if it were the rolling of a carriage at a distance.

"It was predicted the day previous by the Bramins, that a phenomenon resembling a blazing man with a sword in his hand would be observed the same night in the heavens, and numerous have been the spectators anxiously expecting its appearance the greater part of the night; but for all their trouble (although many were up till 4 A. M.) they were disappointed.

"The weather previous to the above shock had been exceedingly warm, but since we have had a few showers of rain, and it is now cooler."

From the preceding details, the ascertained limits of the shock of the 1st April are Sholapore on the North and West, Kurnool on the East,

and Hurryhur on the South. The intensity would appear to have been greater at the intermediate point, Bellary, than at any other, leading to the inference that this place was nearer to the focus of the shock than the other stations at which observations were made. The general direction of the shock was evidently parallel to that of the Western Ghauts, namely from South-West to North-East. A peculiar state of the atmosphere was observed at four of the five stations where the shock was felt; an oppressive closeness of the air and great heat preceded the shock, and after it passed, a change was experienced at Hurryhur by rain.

Earthquake of the 6th April, 1843.—This shock was experienced in various parts of Assam. The following extracts give details :

Extract from the "Friend of India :"—"A letter from Sibsagur, dated April 7th, says, a very singular meteoric appearance was observed here a few evenings since. It occurred a little before 9 o'clock on the evening of the 4th; a very brilliant light suddenly illuminated the whole atmosphere, and on looking up a large cluster of falling stars was seen rapidly descending towards the East in an oblique direction. These disappeared in a few seconds, and about a minute afterwards a loud report was heard resembling that of cannon, resulting doubtless from explosion of the luminous mass. The report was also heard at Jaipore. Last evening at half-past 8, we had several very severe shocks of an Earthquake; the vibrations lasted for about five minutes. Another slight shock was felt at a quarter-past 1 o'clock this morning."

The following extract from Captain Hannay's Journal, kindly communicated to me by Mr. Piddington, gives an account of the shocks as experienced at Debrooghur :—"After a very hot day and close sultry evening, a severe shock of an Earthquake at Debrooghur, lasted several minutes. The motion, however, was only trembling; affecting those houses which had posts built up by walls. Direction appeared to be from W. to S. W.

"April 7th.—Slight shocks at Debrooghur at midnight. Both these Earthquakes felt at Sibsagur, Jeypore, and all over Upper Assam."

At Jeypore the shock is thus described, under date 7th April :

"Last night, nine or ten minutes past 8, we felt a smart shock of an Earthquake, and in four or five minutes more, another shock more severe than the first, and which lasted, I should think, full two minutes. The

doors and windows rattled at a great rate, and one of our lads, who was standing on the bank of the river at the time, said he was near being thrown into the stream: it was the most severe shock I ever felt in Assam. Its course appeared to be from East to West; some of the residents think there were three shocks, but I only noticed two. The weather has been unusually warm for the last two or three days.—*Hurkaru Paper.*

8. *Earthquake of the 11th April, 1843.*—This shock was felt very smartly at Landour, and occurred about five minutes past 8 A.M. The doors and windows of the houses shook and rattled loudly. From observations made on the undulations of liquid in a cup, the direction was from North to South, or from the interior of the hills towards the plains; the duration of the shock was estimated at thirty seconds.

The same shock was experienced about the same time at Hurdwar and Meerut, at both places being very slight, and unaccompanied by any circumstances worthy of note.

9. *Earthquake of the 12th May, 1843.*—The following is an account of this shock as experienced at Penang, taken from the "Penang Gazette" of May 13th:—"Yesterday about 1 P.M. an Earthquake was felt here; the motion was very distinct, it was like a succession of waves, and very different from the quick vibration of the shock experienced in January last: after the first two or three waves a slight pause, when it continued, the undulation being greater; persons sitting were moved from side to side or backwards and forwards in their chairs in a direction from West to East, or from N. W. to S. E., and hanging lamps were swayed to and fro in the same line. It lasted five or six seconds. It came in the direction of Sumatra."

We have no account of this shock from any other point than Penang.

10. *Earthquake of the 3rd of June, 1843.*—This shock was also of very limited range and slight intensity; the only place where it would seem to have been felt being Titalayah, at the base of the Sikkim hills, on the road to Darjeeling. The following extracts from the "Hurkaru" newspaper furnish details.

"By a letter, which we have just received from Titalayah, it appears that that place was visited by an Earthquake on the morning of the 3rd instant. A smart shock of an Earthquake was felt here this morning; I could not note the precise time, not having any time-piece, but I think it was about 10 o'clock. It appeared to pass from North

to South-West, and lasted about three seconds, accompanied with a rumbling noise, like distant thunder.

“The weather for the last three days has been very sultry, with great masses of heavy dark clouds in the North: but this morning about 7 o'clock a thunder-storm passed from North to South-East, with heavy rain, continuing for upwards of two hours; it was perfectly calm at the time of the shock, but the wind rose immediately afterwards, blowing in sudden and heavy gusts from the North-East, with distant thunder from the Westward.

“No damage has been done that I am aware of, but the natives were much alarmed; some, who were at work on the road before my house, threw down their tools and ran away.”—*Bengal Hurkaru*, 10th June.

11. 12. 13. *Earthquakes of the 15th, 16th and 17th June, 1843.*—This series of shocks was experienced in Assam. The first, that of the 15th, is thus noted in Captain Hannay's Register—“At 11 A.M. a smart shock of an Earthquake, with a vertical motion.”

The second, that of the 16th, is thus described in a letter from Jeypur: “On the 16th, fifteen minutes past 8 P.M. we felt the most severe shock of an Earthquake I have noticed in Assam; we had a slight shock the day previous at noon.” Mr. Masters, in a list of Earthquakes felt in Assam, forwarded to me by Major Jenkins, the Commissioner, to whom I am indebted for many similar acts of kindness, thus notices the same shock—“At 8h. 45m. P.M. a smart shock at —.”

The last of the series is described in Captain Hannay's Register in the following terms:—“June 17th, 8 P.M. a very smart shock; at first slight and followed by a severe one, motion undulating, and from the position of a clock which was stopped, must have come from S. W. or W. It lasted altogether about a minute; the weather rainy, with occasional light squalls from S. W. These shocks were felt at Delava, Jaipur, and Sacherah; that of this date at a few minutes past 8, reported by the Officer at Sacherah to have thrown down a portion of the bank of the Burumpooter.”

14. *Earthquake of the 17th June, 1843.*—This shock is of interest, as being the only instance of an Earthquake in Ceylon of which any notice has been obtained; reference is made in one of the extracts that follow to a shock in 1823, that affected this Island, and these two cases are all that have as yet been found on record.

The following extract from the “Colombo Observer” of the 19th

June, details the effects of the shock as experienced at Colombo :—“ On Saturday morning, at about half-past 12, a slight shock of an Earthquake, which lasted half a minute, was felt at Colombo.

“ Persons who happened not to have gone to bed felt the ground to tremble, and heard furniture and even roofs of houses to crack. Many amusing anecdotes are told of those who were awake by the shock ; some supposing tricks were being played upon them, others that robbers were in their houses, and several that people were under their beds.”

The “ Ceylon Herald ” of the 20th, gives the following particulars :

“ On Friday night, the 17th, at about half-past 12, Colombo and its vicinity were visited by an Earthquake, the most terrific of all natural phenomena. It was however so slight, that many people were not at all aware of it, and what was worse, they would hardly believe it when they were informed.

“ Three distinct shocks were felt at very short intervals, all three not perhaps so long as a minute ; great numbers were aware of two shocks, and all agree that the last was the smallest. Most people having retired for the night, they were awakened by their beds being moved upwards in a most remarkable manner, while the curtains moved backwards and forwards, doors and windows shook, and occasionally a creak was heard from the rafters and crockery in the godowns ; but although fears were entertained that injury was done to the houses, not a single instance of the kind has been brought under notice.

“ The officer on guard felt the guard-room vibrate ; and in another quarter of Colombo a gentleman writes, that his whole house moved the same as a ship when struck by a heavy sea.

“ From Galle we learn, that it was felt there at the same time, and with no greater force. As yet we have heard nothing of its being felt in the Central Province. It is very rarely that Earthquakes happen either in Ceylon or Southern India ; we have heard of one in 1823, which at Hambantotte caused the glass on the sideboard to jingle, and it was pretty generally felt throughout the Island.

“ It frequently happens, that an extraordinary fall of the Barometer is observed to precede an Earthquake, but we have not heard yet whether this symptom of its approach was noticed here or not ; such a fall of the Barometer lately attracted considerable attention on the Coast, in connexion with the late storms, and it will be curious to know whether it

was observed on this occasion. Not long after the Earthquake, we had one of those violent squalls which have been so frequent of late as to pass almost without observation; but we have been assured by some of the oldest residents here, that for many years past there have not been such violent storms of wind and rain. As if the electricity in the earth and atmosphere, or whatever else causes storms and Earthquakes, were exhausted, we have had since Saturday a sudden transition to settled weather, with every appearance of its lasting for some time."

With the exception of its locality, there is nothing requiring note in this shock.

15. *Earthquake of the 10th August, 1843.*—Two notices of this shock has reached me; one from A. Campbell, Esq. at Darjeeling, the other from E. Ravenshaw, Esq. at Patna. Dr. Campbell writes as follows, under date 11th August, 1843.

"At 15 minutes to 5 p. m. yesterday, 10th August, by my watch, which was 15 minutes fast by sundial time, we had a shock of Earthquake here, which lasted 20 seconds. Its course was N. W. by S. E. The motion was horizontal: no damage done to any thing.

"As you have expressed a wish to be furnished with information regarding Earthquakes, I have the pleasure to inform you, that a slight shock was experienced at Patna on the 10th instant, at about 4½ p. m. A letter from Tirhoot (Muzufferpoor) mentions, that it was also felt there on the same date and about the same hour."

In a very interesting letter, under date the 9th September 1843, Mr. Ravenshaw communicates the following information:—"A few days after I wrote to you about the Earthquake of the 10th August, my Sheristadar told me he had heard springs of water (Bumbás) had suddenly made their appearance in several villages of the district. I immediately told him to send a man to the spot to bring me some of the water, and all the particulars he could collect regarding the date of their appearance; their number, site, &c. The man returned with seven bottles of the water, and a note in Persian from a person on the spot, stating seven Bumbás had appeared at Dostmahommedpoor, Purgunnah Azemabad, about twenty miles East of Patna. Of these two were large and flowing rapidly, and five small; about a koss West of the village there were seven or eight more, of which three were constantly flowing, the others smaller and less active. He said that others had been heard of at Moza Tilwur, Purgunnah Bhum-

poor, and at Jugutpoor Chedee, Purgunnah Gyaspoor, to the Eastward of Dostmahommedpoor. Another native told me he had heard of a similar occurrence at Moza Soojava, near Jehanabad, half way between this and Agra; some of them are said to be hot springs. I tasted some of the water with oxylate of ammonia, and it proved to be strongly impregnated with lime, like all the water of this district. The Persian letter reported that the Bumbâs made their appearance, or rather were first observed, on the 13th Sawun, or Monday 24th July, which is 16 days before the Earthquake; but I think this must be a mistake, as they were not mentioned to me until several days after I had written to you: it is possible however there may have been another Earthquake, which was not felt at Patna. At any rate I have thought it right to send you this information, which, if not useful, may be interesting.

“Any connection between the appearance of these Springs and the Earthquake is doubtful, the evidence being against, rather than in favour, of such connection; at the same time the occurrence is rare and interesting, and deserves to be recorded, although its causes are too obscure to be traced satisfactorily.

16. 17. *Earthquake of the 3rd September, 1843.*—These shocks were felt in Assam, and are recorded by Captain Hannay, in whose memorandum the following remarks occur under the above date:—“After a hot and sultry day (the 2nd) as ever I felt, the clouds gathered to the South-West, indicating rain, but passed off without any; night very close and sultry: awoke by a smart shock of an Earthquake, cannot speak as to direction.” Again, under the same date, at 7½ p. m. it is remarked, “After a very hot day clouds gathered at S. E., very close and sultry. Squall came on a little before sunset; vivid lightning all round the heavens: previous to squall breaking heard an extraordinary noise in the heavens overhead, like the falling of heavy rain on distant jungle, or like the rushing of wind through a funnel: with the noise was heard an occasional growl, like distant thunder. When the rain fell, this noise had continued for some time, thunder very high in the heaven, but the lightning one blaze all round; whilst at dinner a smart shock from the South.” This latter shock is interesting, from being preceded by the peculiar noise in the air, and accompanied by an excessive display of electricity in the atmosphere. Both shocks, in common indeed with all experienced in Assam, were slight in intensity.

18. *Earthquake of the 30th October, 1843.*—This Earthquake occurred at Sandoway in Arracan, and is thus described under date 31st October 1843, by a correspondent of the “*Englishman* :”—“Yesterday morning, at a quarter to 8 o’clock, this place was visited with a severe concussion of an Earthquake, which continued about two minutes; the oscillations appeared to take a North and Southerly direction, no injury was done, and the general face of the surrounding country remains unaltered: the morning was exceedingly fine, and the Thermometer at 75°. I have written to friends at all stations North of this, to ascertain whether the shock was felt at those places, and have also got natives to write to their friends, in the hills and towards Bassein, to learn whether it was felt in these directions, and if it presented any uncommon phenomenon.”

At a subsequent date, the same writer adds the following particulars :—“Having promised you the results of my enquiries connected with the Earthquake which was felt here on the 30th October last, and with the volcanic eruption which took place some time ago off that Island, near Cheduba, I have now the pleasure to forward you all the information I have been able to collect on the subject, premising, however, that being totally unacquainted with the science of geology, many minutæ have doubtless escaped my enquiry, which would have attracted the attention of a scientific man.

“Regarding the Earthquake, it appears to have proceeded from the South, extending itself along the line of coast as far North as the Town of Ramree, at which place it was but slightly felt; and still fainter at Kyook Phyoo, which is situated at the North of Ramree Island. The shock was very perceptible at Cheduba, scarcely at all so in the Yoomadong mountains, but very severe at ‘Gookhcomg,’ which is about ninety miles South of this, and on the sea shore. The Soogree (or head man) of that district, with whom I have fortunately had an interview, describes it as having so agitated the place, as to cause a great rustling in the trees, and loose stones to roll down the hills; but he states he has neither seen nor heard of its having been attended with any remarkable incident. It has in all probability been felt in Moulmein, and if you have not already had some information on the subject from thence, it would perhaps be a point worth ascertaining.*

* No notice of this, &c. &c.

“ With referencce to the Volcano, which left a transient Island formation, it took place in July last, and continued in an igneous state for eight days. The water in the wells on Flat Island rose considerably, and no noise or agitation preceded the cruption, or was experienced during the period of its action. The native from whom I gained my information, describes it as having been a most magnificent sight, particularly at night; flaming forth with fierceness, as to cause the columns of smoke to ascend till lost in the heavens. The Island which is mentioned as having been thrown up out of the sea, and subsequently disappeared, could have been nothing more than an accumulation of ashes, cinders and lava, ultimately removed by the influence of the tide, and the severity of the South-West monsoon. The situation of it appears to have been a little South of Flat Island, in the intersection of two lines, one drawn through the two volcanoes in Cheduba, and the other through the volcano near Kyook Phyoo and Flat Island; this leads one to the supposition, that it might have some relation to the two former volcanoes. I have seen a number of geological specimens, which were subsequently brought from Flat Island, among which I could recognise quartz, limestone, iron pyrites, shale and scoriæ, besides some others of an igneous nature, the minerological composition of which I could not ascertain.”

19. *Earthquake of the 14th November, 1843.*—The following extract of a letter, under date the 25th November 1843, from Major Jenkins, gives an account of a shock on the 14th November, as felt in parts of Assam:—“ This is just to mention, that a smart shock of an Earthquake was felt at Gowhattee and through Kamroop on the morning of the 14th instant, about from 1 to 3 o'clock; it was so severe as to awaken all the gentlemen out of their beds.

“ I did not feel it in my boat, nor did any of the gentlemen at Sib-sagur (Rungpoore) feel it. Mr. Masters now with me, among others, neither felt it, nor heard that the natives had perceived it.”

As far as Assam is concerned, it has been partial it would seem, as no intelligence of this shock having been experienced elsewhere than above stated having reached me, Major Jenkins's reference as to its local character is probably correct.

20. *Earthquake of the 18th December, 1843.*—This shock was also confined, so far as collected intelligence would shew, to lower Assam. The following extract of a letter from Captain Butler to Major Jenkins,

kindly forwarded to me by the latter, gives details:—"Gowhattee, 19th December 1843. Yesterday whilst sitting in Court, at twenty minutes past 4 P. M. we felt a very severe Earthquake, with a rumbling noise from South to North: the motion was very great, and had it continued a moment longer, I was prepared to rush out of the building. These Earthquakes appear to becoming more violent than I ever recollect before in Assam, from what cause I cannot imagine; but a little more would bring down our Courts and large Bungalows." Major Jenkins mentions, that this shock was not felt in Upper Assam, nor is there any reason to believe it was felt towards Sylhet and Bengal; so that, if the Earthquakes are really becoming more severe, they would appear still to preserve their strictly local and limited character.

This concludes the Register for 1843, shewing a total of twenty shocks during the year, of varying intensity and character. I refrain at present from attempting any detailed arrangement of the phenomena they present, as this can best be done when a large number of observations come under discussion. I now, in closing this paper, will merely annex a Summary of its contents in a Tabular Form.

Tabular Summary of Indian and Asiatic Earthquakes for the year 1843.

Number.	Date.	Locality affected.	Remarks.
1	January 2d,	Manilla,	Slight.
2	„ 4th,	Singapore,	Slight. [Singapore, &c.
3	„ 6th,	Pulo Nias,	Very severe, extended to Penang,
4	„ 8th,	Penang,	Slight.
5	Feb. 8th, ..	Ahmedabad,	Slight. [&c.
6	April 1st, ..	The Deccan,	Severe, felt at Sholapore, Belgaum,
7	„ 6th, ..	Assam,	Smart.
8	„ 11th, ..	Himalayas,	Smart, extended to the Plains.
9	May 12th, ..	Penang,	Smart.
10	June 3d, ..	Titalayah,	Slight.
11	„ 15th, ..	Assam,	Smart.
12	„ 16th, ..	Ditto,	Severe.
13	„ 17th, ..	Ditto,	Smart.
14	„ 17th, ..	Ceylon,	Smart.
15	Aug. 10th, ..	Darjeeling,	Slight, extended to Patna, &c.
16	Sept. 3d, ..	Assam,	Smart.
17	„ 3d, ..	Ditto,	Ditto.
18	Oct. 30th, ..	Arracan,	Smart.
19	Nov. 14th, ..	Assam,	Slight.
20	Dec. 18th, ..	Ditto,	Smart.

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